https://quizlet.com/93832607/2014-sasp-flash-cards/

2014 - 1
A 32-year-old woman has a 0.5 cm vaginal mesh exposure one year following sling placement. There is no urinary tract involvement. Although she has occasional spotting, she is continent and neither she nor her sexual partner are bothered by the mesh. The next step is:

A. observation.
B. abstain from sexual intercourse until the mesh is epithelialized over.
C. local hormone therapy.
D. vaginal excision of exposed mesh.
E. remove the entire sling and perform a urethral bulking injection.

A
Conservative measures, including observation, are reasonable in the properly-selected patient who has a small area of exposure of mesh in the vagina. If the patient is not symptomatic, she does not necessarily need to abstain from intercourse, though it would be advisable to counsel her on the possibility that intercourse could exacerbate mesh exposure. Addition of local hormone therapy would be very reasonable in a postmenopausal woman, however, in a premenopausal woman, her vaginal tissue is likely to be adequately estrogenized; supplementation would therefore be of little to no benefit. Vaginal excision of the exposed mesh could be considered if she or her partner are symptomatic, but does not need to be performed in an asymptomatic patient. Removal of the entire sling is not indicated in this asymptomatic patient. Dmochowski RR, Padmanabhan P, Scarpero HM: Slings: Autologous, biologic, synthetic, and midurethral, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 73, pp 2147-2148.

2014 - 2 A 42-year-old man is unable to void following a straddle injury. Physical examination reveals blood at the meatus and a large perineal hematoma. Retrograde urethrography reveals a complete bulbar urethral disruption with contrast extravasation. The next step is:
A. urethral catheter placement.
B. suprapubic tube placement.
C. flexible cystoscopy with urethral realignment.
D. open cystotomy and antegrade urethral realignment.
E. perineal exploration and repair.

B
The patient has suffered a major straddle injury resulting in complete bulbar urethral disruption. The next best step is suprapubic tube placement and delayed reconstruction. Perineal exploration is not indicated in the setting of acute blunt trauma and complete

disruption of the bulbar urethra. Catheter placement is not indicated with complete disruption. Antegrade or retrograde urethral realignment is not indicated with complete bulbar urethral disruption, yet may be possible with an anterior urethral contusion or incomplete disruption. Morey AF, Dugi DD III: Genital and lower urinary tract trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 88, p 2520.

2014 - 3

A patient has a transscrotal orchiectomy for a 3 cm testicular mass. At the time of exploration, there is violation of the tunica vaginalis. Pathology is pure seminoma. Chest and abdominal CT scan and serum markers are negative. The next step is:

A. surveillance.
B. retroperitoneal XRT.
C. retroperitoneal XRT including the groin and hemiscrotum.
D. excision of scrotal scar and retroperitoneal XRT.
E. three cycles of BEP.

C

Suboptimal approaches to testicular neoplasms, including scrotal orchiectomy, transscrotal biopsy, or fine-needle aspiration are reported from 4-17% of the time. A recent meta-analysis of 206 cases of scrotal violation reported a local recurrence rate of 2.9% compared with 0.4% of patients treated by inguinal orchiectomy, but no difference in systemic relapse or survival rates. There did not appear to be any advantage to adjuvant therapy. Others have reported an increased local recurrence rate in patients with scrotal contamination and an 11% presence of tumor in hemiscrotectomy specimens of patients with scrotal violation. Therefore, for patients with scrotal violation with low-stage seminoma, the radiation portals should be extended to include the ipsilateral groin and scrotum. This may result in an increased risk of azoospermia. Observation is not appropriate in the setting of scrotal violation. Platinum, etoposide, and bleomycin (BEP) is appropriate for treatment of non-seminomatous germ cell tumors and advanced seminoma, not low-stage seminoma. Sheinfeld J, Bosl GJ: Surgery of testicular tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 32, p 873.

2014 - 4 The effect of finasteride on serum and intraprostatic testosterone is:

A. Serum Testosterone: <UP>; Intraprostatic Testosterone: <UP>
B. Serum Testosterone: <UNCH>; Intraprostatic Testosterone: <UNCH>
C. Serum Testosterone: <DOWN>; Intraprostatic Testosterone: <DOWN>
D. Serum Testosterone: <UP>; Intraprostatic Testosterone: <DOWN>
E. Serum Testosterone: <UNCH>; Intraprostatic Testosterone: <UP>

A

There are two isoenzymes of 5-alpha-reductase (Type I and Type II). Finasteride blocks only the Type II isoenzyme. The prostate contains the Type II enzyme. Therefore, dihydrotestosterone (DHT) levels are decreased in the prostate. There is an upregulation of serum and intraprostatic testosterone. The serum DHT is typically decreased by about 85%, but not to castrate levels as circulating testosterone is converted to DHT by Type I isoenzyme in the skin and liver. The decreased DHT production leads to reduction in negative feedback which leads to increased LH production, hence increase serum testosterone. McNicholas TA, Kirby RS, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 92, p 2633.

2014 - 5

A 21-year-old man receives a stem cell transplant with high-dose salvage chemotherapy for a Stage III NSGCT refractory to primary chemotherapy. After his salvage chemotherapy, his markers normalize and his CT scan is shown. The next step is:

A. observation.
B. PET scan.
C. percutaneous biopsy.
D. two additional cycles of chemotherapy.
E. RPLND.

E

This patient has several residual masses after salvage chemotherapy. Given that he has received salvage chemotherapy and that his markers are normal, his best option is RPLND. The chance of viable disease is approximately 50%, teratoma 40%, and necrosis/fibrosis only 10%, thus, observation is a poor choice. A PET scan would not tell about teratoma which would need to be resected. A percutaneous biopsy could have sampling errors and would not obviate the need for additional treatment. Since the markers are normal, there is no indication at this time for additional chemotherapy especially in the salvage setting. Sheinfeld J, Bosl GJ: Surgery of testicular tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 32, p 887.

2014 - 6 A 56-year-old man undergoes a radical cystoprostatectomy and orthotopic neobladder. Long-term preservation of renal function is most dependent on:

A. preferential use of ileum over colon.
B. use of > 60 cm of detubularized bowel.
C. performance of an antirefluxing ureteroileal anastomosis.

D. intraoperative neobladder capacity of >= 500 ml.
E. postoperative avoidance of any bacteriuria.

A
Reservoirs made of detubularized **ileum** appear to have the greatest compliance and lowest likelihood of generating intermittent high-pressure contractions. Several clinical studies have demonstrated that the urodynamic characteristics of the ileum appear to be superior to those of the colon and is therefore the preferred segment of bowel used for a neobladder. Larger bowel lengths with increased intra-operative volumes are not necessary as all bowel segments effectively stretch over time if there is adequate outflow resistance. In fact, commonly utilized techniques (e.g. Studer, T-pouch) utilize 40-44 cm of ileum with resultant intra-operative volumes of 200 ml or less. For ileal neobladders, it has been shown that the capacity increases sevenfold after one year. The true benefits of anti-refluxing anastomosis remain uncertain. It does not appear that conduit pressures are transmitted to the renal pelvis. Also, there is no difference in conduits between those with versus without reflux, with regard to renal function measured two to five years postoperatively. Furthermore, the successful construction of an anti-refluxing anastomosis does not prevent bacterial colonization of the renal pelvis. Many of these patients have no untoward effects and seem to do well with chronic bacteriuria. Deterioration of the upper tracts is more likely when the culture becomes dominant for Proteus or Pseudomonas, and should therefore be treated, whereas those with mixed cultures may generally be observed, provided they are not symptomatic. Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 85, p 2411. Skinner EC, Skinner DG, Stein JP: Orthotopic urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 87, p 2479.

2014 - 7
A 63-year-old man undergoes partial nephrectomy in a solitary kidney. The renal artery is clamped for 40 minutes without the use of surface hypothermia. Postoperatively, the creatinine rises from 1.5 mg/dl to 2.5 mg/dl. The renal structure most likely to have been injured is:

A. cortical collecting duct.
B. distal convoluted tubule.
C. juxtaglomerular apparatus.
D. proximal convoluted tubule.
E. medullary thick ascending loop of Henle.

E
The clinical scenario described is ischemic acute tubular necrosis (ATN). This is characterized by tubular cell injury which may be sublethal or lethal. During normal renal function, the medulla operates at the brink of hypoxia due to countercurrent diffusion of

oxygen in the vasa rectae. During prolonged ischemia, medullary hypoxia is intensified and high metabolic requirements of the structures located in the outer medulla are most sensitive to injury. The medullary thick ascending limb of Henle is rich in the energy requiring Na+-K+ ATPase and is most sensitive to ischemic damage. The concept of ATN is important in partial nephrectomies and renal transplantation. The other structures are not located in the medulla. Management of ATN would include optimizing perfusion and oxygenation of the kidney, and minimizing nephrotoxic agents. Goldfarb DA, Poggio ED: Etiology, pathogenesis, and management of renal failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 43, p 1200.

2014 - 8

A 34-year-old man and his 29-year-old wife have a two year history of infertility. His physical exam is normal. Semen analysis reveals a volume of 2 ml, sperm 23 mil/ml, 2% motility, and 12% normal morphology. Repeat analysis is similar. The next step is:

A. sperm viability assay.
B. testosterone and FSH levels.
C. karyotype and Y chromosome microdeletion testing.
D. scrotal ultrasonography.
E. testicular sperm extraction.

A
This patient has a less than 5% motility. This raises the prospect of an ultrastructural abnormality in the sperm tails such as primary ciliary dyskinesia. This is characterized by extremely low motility but relatively high sperm viability on a sperm viability assay. Since the sperm concentration is normal, there is no indication for determination of testosterone, FSH, karyotype, or Y chromosome microdeletion testing. Scrotal ultrasonography will not add any useful information. Testicular sperm extraction is indicated for azoospermia. Since this patient has motile sperm in the semen, there is no reason for sperm extraction. Sperm from patients with ciliary dyskinesia may be used for intra-cytoplasmic sperm injection (ICSI), but pregnancy rates are low. Jarow J, Sigman M, Kolettis PN, et al: The optimal evaluation of the infertile male: AUA best practice statement revised, 2010. OPTIMAL EVALUATION OF THE INFERTILE MALE. American Urological Association Education and Research, Inc, 2010. http://www.auanet.org/education/guidelines/male-infertility-d.cfm Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 621.

2014 - 9 A morbidly obese 72-year-old man undergoes XRT for prostate cancer complicated by a urethral stricture requiring multiple direct visual internal urethrotomies. He subsequently develops BCG refractory CIS of

the bladder cancer and chooses to undergo cystectomy. The risk factor that makes him an unacceptable candidate for orthotopic diversion is:
A. prior XRT.
B. morbid obesity.
C. urethral stricture disease.
D. age.
E. presence of CIS.

C
The patient has multiple risk factors which increase his risk for complications after surgery for cystectomy and orthotopic diversion, however, only urethral stricture disease would be a contraindication for the diversion. CIS does not appear by itself to significantly increase the risk of urethral recurrence after orthotopic diversion. Obese patients may actually do better with an orthotopic diversion as it avoids stomal issues that are common in the morbidly obese. Studies have demonstrated the safety and feasibility of performing orthotopic diversions in previously radiated patients. Similarly, age is not a contraindication. Patients with urethral stricture disease should not undergo orthotopic diversion as they may be unable to catheterize should the need arise and may cause overdistension of the neobladder which could lead to rupture. Skinner EC, Skinner DG, Stein JP: Orthotopic urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 87, pp 2484-2485.

2014 - 10 A 47-year-old woman undergoes an abdominal sacrocolpopexy and a suburethral sling procedure. She is a nonsmoker and does not use estrogen replacement therapy. She is not obese. Recommended DVT prophylaxis is:
A. early ambulation only.
B. pneumatic compression device only.
C. heparin 5000 units subcutaneous every eight hours starting after surgery.
D. heparin 5000 units subcutaneous every 12 hours starting after surgery.
E. heparin 5000 units subcutaneous every 24 hours starting after surgery.

D
The patient is classified as moderate risk for DVT based on her age (> 40) and absence of additional risk factors, therefore prophylaxis is indicated. A pneumatic compression device would be recommended if the risk of intraoperative bleeding were high. Otherwise, heparin 5,000 units every 12 hours is recommended. Heparin 5,000 every eight hours dosing is recommended for those at high risk for DVT. Forrest JB, Clemens JQ, Finamore P, et al: Best practice policy statement for the prevention of deep vein thrombosis in patients undergoing urologic surgery. PREVENTION OF DVT AFTER UROLOGIC SURGERY BEST PRACTICE STATEMENT. American Urological

Association Education and Research, Inc, 2008.
http://www.auanet.org/education/guidelines/deep-vein-thrombosis.cfm

2014 - 11

A 25-year-old man is evaluated as a potential living renal donor to his sister. Arteriography shows a single artery to each kidney. A left donor nephrectomy is undertaken and at surgery, a second unsuspected 1.5 mm diameter artery to the lower pole is found 5 mm inferior to the main renal artery. The best management is:

A. ligation of the polar artery.
B. use of a donor aortic patch encompassing both arteries.
C. use of a donor aortic patch encompassing the polar artery.
D. ex vivo anastomosis of the polar to the main renal artery.
E. ex vivo anastomosis of both arteries to a Dacron patch.

D
The proper management is to divide the two arteries separately during kidney removal and perform ex vivo end-to-side anastomosis of the small artery to the larger one. Unlike in cadaveric kidney donation, use of an aortic patch is contraindicated in living renal donors due to potential risk to the donor. Ligation of the lower pole vessel may lead to lower pole ischemia and potentially a urinary fistula. Transplantation with two arterial anastomoses in the recipient will lengthen the revascularization time and increase the risk of ischemic renal damage. Use of a Dacron patch is rarely indicated unless the recipient has significant atherosclerosis. Barry JM, Conlin MJ: Renal transplantation, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 44, pp 1241-1242.

2014 - 12

A 25-year-old woman experiences recurrent UTIs following sexual activity. Cultures with each episode reveal pan-sensitive E. coli. Each symptomatic episode has been treated for 14 days with nitrofurantoin. Five days after completing her most recent treatment, catheterized urine is sterile, PVR is negligible, and pelvic exam is normal. If she experiences another UTI, the next step is:

A.
retreat with nitrofurantoin and counsel the patient to drink more fluids, improve hygiene, and void after intercourse.

B. treat with three days of trimethoprim-sulfamethoxazole.
C. renal bladder ultrasound.
D. renal bladder ultrasound and cystoscopy.

E.
renal bladder ultrasound, cystoscopy, and localization cultures.

B
Conservative measures such as hydration, hygiene, and voiding after intercourse have been documented to be ineffective in preventing post-coital UTIs. The most likely cause for her recurrent infections is persistence of uropathogenic bacteria in the vaginal flora, which were ineffectively treated with the urinary concentrated antibiotic, nitrofurantoin. Treatment with three days of trimethoprim-sulfamethoxazole will eliminate vaginal colonization. Upper tract imaging and cystoscopy are indicated if recurrence of the same bacteria occurs rapidly despite treatment with an antibiotic that eradicates vaginal colonization. Localization cultures may be indicated if cystoscopy and upper tract imaging are unrevealing. Post-coital antibiotic prophylaxis is another treatment option. Nicolle LE: Uncomplicated urinary tract infection in adults including uncomplicated pyelonephritis. UROL CLIN N AM 2008;35:5. Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10, p 291.

2014 - 13 A distal urethral perforation occurs during insertion of a malleable penile prosthesis. The contralateral cylinder has not been placed. The next step is:
A. place urethral catheter and complete the implantation.
B. repair urethra and implant the contralateral prosthesis.
C. repair urethra and place a suprapubic tube only.
D.
repair urethra, proceed with implantation, and place a suprapubic tube.

E. place urethral catheter and terminate the procedure.

E
If urethral perforation occurs during dilation, it is best to abandon the procedure, divert the urine with a urethral catheter, and return at a later date. If the contralateral cylinder has already been placed and there is no septal perforation, then it may be left in place. The urine should be diverted. Urethral repair would be difficult and is unnecessary. Should this occur with an inflatable prosthesis, the entire device should be removed and the urethra allowed to heal. Montague DK: Prosthetic surgery for erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 27, p 790.

2014 - 14 A 27-year-old man with a C5 spinal cord injury has recurrent problems with sediment and clogging of his indwelling urethral catheter despite frequent catheter changes. The next step is:
A. urine culture to identify urease producing organism.

B. daily acetic acid irrigation.
C. placement of a large lumen suprapubic tube.
D. non-contrast CT scan.
E. cystoscopy.

A
Simple measures such as catheter irrigations and placement of a larger diameter suprapubic tube may temporize but not completely address the underlying problem of recurrent catheter encrustation with sediment. Catheter encrustation is attributed to bacterial biofilm, particularly biofilms made by urease producing bacteria such as proteus mirabilis. Urine culture is the appropriate next step. If a urease producing organism is identified, both treatment of the offending organism and evaluation for the presence of bladder or upper tract stones that could be serving as a nidus for bacterial infection is necessary. Wyndaele JJ: The encrustation and blockage of longterm indwelling catheters. SPINAL CORD 2010;48:783.

2014 - 15
A 58-year-old woman undergoes an uncomplicated laparoscopic right adrenalectomy for a 6 cm cortisol hypersecreting right adrenal mass. On postoperative day two, she has a low-grade fever, nausea, vomiting, hypotension, and abdominal pain. The next step is:

A. 24-hour urine-free cortisol measurement.
B. measurement of plasma metanephrine levels.
C. hydrocortisone therapy.
D. broad-spectrum antibiotics.
E. exploratory laparotomy.

C
Acute adrenal insufficiency, or adrenal crisis, is an acute condition often preceded by hypotension unresponsive to fluid resuscitation. Patients are often misdiagnosed with an acute abdomen, whereas abdominal pain, nausea, vomiting, and fever frequently accompany hypovolemia. Adrenal insufficiency following adrenalectomy in the setting of a normally functioning contralateral adrenal gland is unlikely, but possible. This is especially true for patients who are undergoing adrenalectomy for a cortisol-secreting lesion, because functionality of the contralateral gland can be suppressed as in this patient. The diagnosis of primary adrenal insufficiency is primarily made on clinical grounds, with a high index of suspicion given a patient's history, exam, and laboratory evaluation. Because adrenal crisis can be an acute and potentially life-threatening condition, consideration for treatment (i.e. repletion) should be made at the outset. If desired, the diagnosis is ultimately secured by measurements of morning serum cortisol and ACTH, but unnecessary delay in treatment should not be made simply to secure this diagnosis. Urinary cortisol and metanephrine levels are not indicated or necessary in this case. Furthermore, the initiation of broad-spectrum antibiotics will not address the underlying problem of adrenal insufficiency. The treatment of adrenal insufficiency

involves adrenal hormonal repletion. Cortisol is replaced with hydrocortisone or with cortisone acetate. Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 57, p 1685.

2014 - 16 A 45-year-old neurologically normal man has worsening urinary incontinence for several years. Videourodynamic study is shown with the voiding image. The diagnosis is:
A. striated sphincter dyssynergia.
B. stress urinary incontinence.
C. bulbar urethral stricture disease.
D. detrusor overactivity with impaired contractility.
E. bladder neck obstruction.

E
The urodynamic tracing indicates detrusor overactivity associated with incontinence and bladder outlet obstruction during emptying. The tracing does show increased EMG activity during the detrusor overactivity but this is due to volitional suppression, not true striated dyssynergia. The image demonstrates narrowing at the proximal urethra consistent with bladder neck obstruction with voiding. At the time, the voiding image is taken there is no increased EMG activity excluding striated sphincter dyssynergia. There is no bulbar urethral narrowing to suggest urethral stricture disease. High-pressure voiding excludes impaired detrusor contractility. Nitti VW: Urodynamic and video-urodynamic evaluation of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 62, pp 1863-1864.

2014 - 17
Three months following a bilateral nerve sparing radical prostatectomy, a 65-year-old man has erectile dysfunction. He has failed oral therapy and wishes not to pursue intracavernosal injection therapy. He attempts intraurethral alprostadil 1000 mcg. The most likely occurrence is:

A. inadequate erection.
B. penile pain.
C. headache.
D. hypotension.
E. urethral bleeding.

A
Intra-urethral prostaglandin administration is a reasonable alternative to intracavernosal injection therapy. Significant decrease in blood pressure occurs in approximately 2% of men. Penile pain is estimated to occur in 18-33% of men. Only 40% of men will

consistently attain an erection adequate for penetration with intra-urethral alprostadil. Urethral bleeding is reported in about 5% of men and headache is rare. Burnett AL: Evaluation and management of erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 24, p 745.

2014 - 18 An adverse prognostic feature not included in the Motzer Criteria for patients with metastatic RCC is:
A. Karnofsky performance status (KPS) < 80%.
B. elevated LDH.
C. thrombocytopenia.
D. prior nephrectomy.
E. hypercalcemia.

C
The natural history of RCC is highly unpredictable. For instance, approximately 5% of patients with what are usually small indolent tumors (< 4 cm in size), will have metastatic disease at presentation and subsequently an elevated risk of disease-specific mortality. In contrast, up to 40% of patients with lymph node metastases diagnosed at the time of nephrectomy are alive five years after surgery. The Motzer criteria is a validated risk measurement tool that the physician may employ to aid in the discussion regarding the patient's prognosis and is a useful guide in the formulation of treatment options. RCC risk groups are determined by the number of existing adverse features. The adverse features included in the Motzer criteria are Karnosky performance status < 80%, elevated LDH, anemia, hypercalcemia, and prior partial or total nephrectomy. Thrombocytopenia is not part of the criteria. If no risk factors are present, the patient is considered at low risk for recurrence. The presence of one to two features indicates intermediate risk and the presence of three to five adverse features poor/high risk for tumor recurrence. Srinivasan R, Linehan WM: Treatment of advanced renal cell carcinoma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 50, p 1476. Motzer RJ, Mazumdar M, Bacik J, et al: Survival and prognostic stratification of 670 patients with advanced renal cell carcinoma. J CLIN ONCOL 1999;17:2530-2540.

2014 - 19 The imaging study providing the best sensitivity and specificity for assessing bony metastatic disease in men with high-risk prostate cancer is:
A. plain film tomography.
B. CT scan with bone windows.
C. 99mTc-MDP bone scan.
D. 18F-fluoride PET scan.
E. single-photon emission computed tomography (SPECT) scintigraphy.

D
In 2009, the Division of Cancer Treatment and Detection of the National Institutes of

Health (NIH) conducted a review concerning 18F-PET imaging and its utility for assessing cancer metastases to bone, and concluded that 18F-PET provides the best sensitivity and specificity for the detection of bony metastases in prostate cancer. This review and other studies have demonstrated the superiority of 18F-PET to conventional (99mTc-MDP) bone scan with regard to specificity and sensitivity. Plain film tomography, CT scan with bone windows, and SPECT/CT have been used to evaluate suspicious or suspected areas of bony metastasis, but are not utilized for the initial survey of metastases in the high-risk patient. Each of these studies have more limited performance characteristics than 18F-PET. It remains to be seen whether this imaging modality will become the standard of care. Jadvar H: Molecular imaging of prostate cancer: PET radiotracers. AM J ROENTGENOL 2012;199:278-291. Rioja J, Rodr_guez-Fraile M, Lima-Favaretto R, et al: Role of positron emission tomography in urological oncology. BJU INT 2010;106:1578-1593. Even-Sapir E, Metser U, Mishani E, et al: The detection of bone metastases in patients with high-risk prostate cancer: 99mTc-MDP planar bone scintigraphy, single- and multi-field-of-view SPECT, 18F-fluoride PET, and 18F-fluoride PET/CT. J NUCL MED 2006;47:287-297. Bauman G, Belhocine T, Kovacs M, et al: 18F-fluorocholine for prostate cancer imaging: A systematic review of the literature. PROSTATE CNCR PROSTATIC DIS 2012;15:45-55.

2014 - 20

A 32-year-old man with infertility has unilateral absence of the vas deferens and 28 ml testes. Semen analysis reveals a volume of 0.5 ml, azoospermia, and pH of 6.4. FSH is 4.9 IU/l. Transrectal ultrasound reveals ipsilateral seminal vesicle agenesis and contralateral seminal vesical hypoplasia. Genetic testing is normal. The next step is:

A. renal ultrasonography.
B. scrotal exploration with vasography.
C. scrotal ultrasound.
D. sweat test.
E. testis biopsy.

A

Low volume azoospermic acidic semen suggests lack of seminal vesicle contribution to the semen. The differential diagnosis of this finding is: bilateral ejaculatory duct obstruction and congenital bilateral absence of the vas deferens (CBAVD). Transrectal ultrasound can differentiate between the two entities with CBAVD patients having either seminal vesicle agenesis or seminal vesicle hypoplasia. Bilateral ejaculatory ductal obstruction is associated with midline urethral cysts, bilateral seminal vesicle cysts, or the bilateral seminal vesical cysts with dilation of the ejaculatory ducts. CBAVD variants, as in this patient, one vas may be non-palpable while the other is present in the scrotum but absent in the pelvis. All CBAVD patients (including variants) should have genetic testing for cystic fibrosis. Up to 30% of patients will have no identifiable cystic fibrosis mutation. Some of these patients will have unilateral renal agenesis. It is thought that these patients have CBAVD due to mesonephric ductal-ureteral bud abnormalities. Up to

5% of these patients will be found to have renal agenesis, a finding not associated with CBAVD due to cystic fibrosis. It is therefore recommended that patients with CBAVD with a negative genetic test for cystic fibrosis, have a renal ultrasound performed. Scrotal exploration and vasography are not indicated in CBAVD patients, diagnosis is made by physical exam plus transrectal ultrasound for CBAVD variants. Scrotal ultrasound will not help with the diagnosis. The sweat test is not indicated in this patient with normal genetic testing and no clinical symptoms of cystic fibrosis. Testis biopsy to evaluate infertility is not indicated because the patient has CBAVD, normal FSH, and normal-sized testes. Treatment options for infertility in CBAVD patients is ICSI with sperm retrieval by TESE and implantation by IVF. Note in patients with CBAVD negative for cystic fibrosis, offspring may carry the trait and children with unilateral and bilateral renal agenesis have been reported. Jarow JP, Sigman M, Kolettis PN, et al: The optimal evaluation of the infertile male: AUA best practice statement revised, 2010. OPTIMAL EVALUATION OF THE INFERTILE MALE. American Urological Association Education and Research, Inc, 2010. http://www.auanet.org/education/guidelines/male-infertility-d.cfm Schwarzer JU, Schwarz M: Significance of CFTR gene mutations in patients with congenital aplasia of vas deferens with special regard to renal aplasia. ANDROLOGIA 2012;44:305-307. McCallum TJ, Milunsky JM, Munarriz R, et al: Unilateral renal agenesis associated with congenital bilateral absence of the vas defens: Phenotypic and genetic considerations. HUM REPROD 2001;16:282-299.

2014 - 21 A 50-year-old smoker with gross hematuria has a 1 cm left mid-ureteral filling defect on CT urography. The lesion is biopsied and laser ablated ureteroscopically. Histology reveals an inverted papilloma. The next step is:

A. no further treatment or follow-up.
B. long-term antibiotics.
C. surveillance of the bladder and upper tracts.
D. segmental ureterectomy.
E. left nephroureterectomy.

C

Inverted papillomas are typically of two types (Type 1 and Type 2). Type 2 may exhibit a malignant behavior whereas Type 1 is benign. Unfortunately, they are histologically indistinguishable. Because of this, conservative treatment followed by surveillance for two years is recommended. Therefore no further treatment or follow-up is incorrect. Since it is possibly a benign lesion and presumably completely ablated by the laser, no additional treatment is warranted including antibiotic therapy. Sagalowsky AI, Jarrett TW, Flanigan RC: Urothelial tumors of the upper urinary tract and ureter, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 53, p 1521.

2014 - 22 A 40-year-old woman has urine draining from a port site three days following laparoscopic assisted vaginal hysterectomy. Cystogram is shown and bilateral retrograde pyelograms are normal. The next step is:

A. prolonged catheter drainage.
B. bilateral percutaneous nephrostomies.
C. exploratory laparotomy.
D. transvaginal repair.
E. place pelvic drain.

C
This patient has a large intraperitoneal bladder perforation and urinary ascites from an unrecognized bladder injury during hysterectomy. The best choice for management is immediate transperitoneal exploration with repair of the bladder injury. This will allow drainage of the urinary ascites, washing out of the peritoneal cavity, and significantly reduce the risk of peritonitis and vesicovaginal fistula formation. The use of a pedicalized omental flap to place between the bladder repair and the vaginal cuff suture lines should also be attempted to avoid overlapping suture lines and further minimize risk of post-operative fistula. Prolonged catheter drainage is the incorrect management of an intraperitoneal bladder injury and may result in prolonged urinary ascites with resultant persistent ileus and peritonitis. Bilateral nephrostomy tubes often do not result in complete urinary diversion and would likely result in a prolonged clinical course and delay recovery. Transvaginal repair is the wrong approach to repair an intraperitoneal bladder injury. Morey AF, Dugi DD III: Genital and lower urinary tract trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 88, p 2516.

2014 - 23
A 27-year-old gunshot victim has a short upper ureteral injury and a splenic injury. During exploratory laparotomy, his vital signs are unstable with significant hypotension despite management of the splenic injury. No other acute injuries are present. The next step in management of his ureteral injury is:

A. retrograde ureterogram and placement of a ureteral stent.
B. excision of injured segment and ureteroureterostomy.
C. transureteroureterostomy.
D. ligation of ureter and percutaneous nephrostomy.
E. nephrectomy.

D
In an unstable patient, ureteral injuries are best managed by ureteral ligation, percutaneous nephrostomy drainage, and delayed repair. In these instances, other choices are inappropriate because of the time needed for completion of the repair. In stable patients, short upper ureteral injuries may be managed by ureteroureterostomy with excision of the injured segment. A transureteroureterostomy may be appropriate with a long mid-ureteral injury but not an upper ureteral injury. A nephrectomy is not indicated in the absence of renal trauma especially if delayed salvage of the ureter is possible.

Elliott SP, McAninch JW: Ureteral injuries from external violence. AUA UPDATE SERIES 2004, vol 23, lesson 1, pp 4-6.

2014 - 24

A 60-year-old smoker has a highly suspicious voided urinary cytology. CT urogram is normal. Cystoscopy, bladder biopsy, and bilateral retrograde pyelograms are normal. Selective left upper tract cytologies are highly suspicious for malignancy. The next step is:

A.
repeat cystoscopy, biopsy, retrograde pyelography, and selective cytologies in three months.

B. repeat left ureteral washings for fluorescent in-situ hybridization (FISH).
C. left ureteropyeloscopy.
D. left ureteral stent and intravesical BCG.
E. left percutaneous nephrostomy and antegrade BCG therapy.

C
In cases of unilateral upper tract cytologic abnormalities (with normal cystoscopy, pyelography, and bladder biopsies), ureteropyeloscopy is indicated as the next step. Ureteropyeloscopy allows for direct visualization of small lesions and is superior to retrograde pyelography in the detection of small tumors. Biopsy at the time of ureteropyeloscopy should be attempted, if feasible. A persistently abnormal cytology without any visualized lesions may signify CIS. In the past, nephroureterectomy was performed for a unilateral cytologic abnormality of the upper tract to eliminate presumed CIS, but this is no longer considered an appropriate initial approach. Observation is also not appropriate without further evaluation given the repeated abnormal cytologies. Current approaches for presumed upper tract CIS include topical immunotherapy or chemotherapy, delivered retrograde intravesically with ureteral stents in place to assist with reflux or antegrade via a nephrostomy tube under careful pressure control. Novel urinary markers (e.g., FISH) have been reported for upper tract tumor surveillance and may aid in the detection of such tumors. To date, none of these markers have a high enough sensitivity or specificity to make decisions for or against therapeutic intervention. In this case, repeat procedure under anesthesia to obtain a selective urinary sample for FISH is not warranted. Sagalowsky AI, Jarrett TW, Flanigan RC: Urothelial tumors of the upper urinary tract and ureter, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 53, pp 1549-1550. Wood DP: Urothelial tumors of the bladder, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 80, pp 2328-2329.

2014 - 25

A 52-year-old man develops abrupt and severe hypertension. He is poorly controlled with an ACE inhibitor, calcium channel blocker, diuretic, and minoxidil. None of these medications can be safely withheld. Serum creatinine is 1.3 mg/dl. The best way to evaluate for renovascular hypertension is:

A. captopril plasma renin activity test.
B. unstimulated plasma renin activity test.
C. captopril renography.
D. duplex ultrasound.
E. diuretic renography.

D

This 52-year-old man is at risk for renovascular hypertension. Of the two captopril modulated tests: plasma renin activity (PRA) and captopril renogram, the renogram is a better test than peripheral PRA. Critical to the performance of these tests is appropriate patient preparation. Ideally, patients should be off all medications for two weeks. This is usually not possible clinically. In patients on medications it is critically important to recognize that the use of ACE inhibitors will significantly reduce the sensitivity of captopril stimulated testing and should be discontinued two weeks prior to the test. However, other antihypertensive medications can be used up to the morning of testing. In this clinical setting, duplex ultrasound will give anatomic information on the renal arteries sufficient to determine the need for angiography. Diuretic renography is not generally used as a test for renal artery stenosis. Fergany A, Novick AC: Renovascular hypertension and ischemic nephropathy, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 39, pp 1061-1062.

2014 - 26

A 65-year-old woman with controlled flank pain has an opaque 6 mm distal right ureteral stone. Urine pH is 6.0. She has no pyuria, fevers, or chills. She is scheduled to undergo cataract surgery in four weeks. The next step is:

A. corticosteroids.
B. tamsulosin.
C. sodium bicarbonate.
D. ureteral stent.
E. ureteroscopic extraction.

E

The AUA Ureteral Calculi Guideline states that for newly diagnosed ureteral stone < 10 mm and whose symptoms are controlled, observation with periodic evaluation is an

initial option. Furthermore, such patients may be offered an appropriate medical therapy to facilitate stone passage during this observation period. Metanalysis has shown tamsulosin to be superior to nifedipine in medical expulsive therapy. However, tamsulosin has been described to cause intraoperative floppy iris syndrome (IFIS) and complicates cataract surgery. Therefore, in a patient who is about to undergo cataract surgery, it would be best to avoid tamsulosin. Therefore, the options for this particular patient are observation, SWL, ureteroscopic extraction, or ureteral stent. A 6 mm stone is best treated by ureteroscopic extraction, because more often than not (53% of the time), these stones will not spontaneously pass. An opaque stone implies that the stone is not uric acid and therefore alkalization with sodium bicarbonate would be an incorrect choice. Preminger GM, Tiselius HG, Assimos DG, et al: 2007 guideline for the management of ureteral calculi. URETERAL CALCULI, American Urological Association Education and Research, Inc, 2007. http://www.auanet.org/education/guidelines/ureteral-calculi.cfm Cantrell MA, Bream-Rouwenhorst HR, Steffensmeier A, et al: Intraoperative floppy iris syndrome associated with alpha1-adrenergic receptor antagonists. ANN PHARM 2008;42:558-563.

2014 - 27 Screening for RCC in patients with ESRD should be reserved for patients:

A. with significant comorbidities.
B. initiating hemodialysis.
C. with a history of obesity and tobacco abuse.
D. who have undergone at least three years of dialysis.
E. with autosomal dominant polycystic kidney disease.

D
The relatively low incidence of RCC in the general population and the potential risk of identifying clinically insignificant lesions argue against widespread screening. However, several well-defined target populations who are at increased risk of RCC may be suitable for screening efforts. The relative risk of RCC in patients with ESRD has been estimated to be 5-20 times higher than that in the general population. The majority of patients with ESRD will develop acquired renal cystic disease (ARCD) and some of these patients will develop RCC. Cystic disease is associated with time of maintenance dialysis; increasing with duration of therapy. In renal failure patients, a reasonable approach to screening for patients with ESRD without other major comorbidities, is to delay screening until the third year on dialysis. Those with significant comorbidities, and thereby limited life expectancies, are not felt to benefit from screening and thereby should not be screened. Patients undergoing maintenance hemodialysis were previously thought to have a higher incidence of ARCD and thereby a higher risk of renal carcinoma than patients on peritoneal dialysis. However, recent studies have demonstrated similar rates of ARCD in both dialysis subgroups, and thereby suggests both forms of maintenance dialysis would increase the risk of developing renal carcinoma. Obesity and tobacco abuse have been shown to be risk factors for RCC, but these conditions themselves do not necessarily warrant screening efforts in patients with renal dysfunction. Screening for RCC in autosomal dominant polycystic kidney disease (ADPKD) was previously recommended. However, recent studies suggest no significantly increased risk of RCC in ADPKD and

imaging is extremely difficult in this population related to the altered intrarenal architecture. Taken together, these considerations suggest that screening for RCC in patients with ADPKD should not be pursued. Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, pp 1438-1439.

2014 - 28 A 55-year-old man has flank and bladder pain with a ureteral stent after uncomplicated ureteroscopy. The next step is analgesics and:

A. oxybutynin.
B. nifedipine.
C. tamsulosin.
D. prednisone.
E. phenazopyridine.

C
A metanalysis of patients treated with alpha-blockers for stent discomfort identified 12 randomized controlled trials with 946 patients. It concluded that alpha-blockers were associated with a significant decrease in urinary symptoms and pain, and significant improvement in general health. In contrast, randomized controlled studies failed to demonstrate benefits with oxybutynin, phenazopyridine, or a ketorolac eluting ureteral stent. Periureteral botulinum toxin injection at the time of stent placement has been demonstrated to decrease stent morbidity, however, this would require a secondary cystoscopic procedure, and has not been studied as a

rescue

procedure after stent placement. Nifedipine and prednisone have not been studied for use in stent pain. Yakoubi R, Lemdani M, Monga M, et al: Is there a role for alpha-blockers in ureteral stent related symptoms? A systematic review and meta-analysis. J UROL 2011;186:928-934. Norris RD, Sur RL, Springhart WP, et al: A prospective, randomized, double-blinded placebo-controlled comparison of extended release oxybutynin versus phenazopyridine for the management of postoperative ureteral stent discomfort. J UROL 2008;71:792-795. Gupta M, Patel T, Xavier K, et al: Prospective randomized evaluation of periureteral botulinum toxin type A injection for ureteral stent pain reduction. J UROL 2010;183:598-602. Krambeck AE, Walsh RS, Denstedt JD, et al: A novel drug eluting ureteral stent: A prospective, randomized, multicenter clinical trial to evaluate the safety and effectiveness of a ketorolac loaded ureteral stent. J UROL 2010;183:1037-1042.

2014 - 29 A 58-year-old woman returns to the office two months following sacral neuromodulation with a low grade fever and incisional drainage associated with pain and erythema over the implantable pulse generator (IPG) site. The next step is explantation of the:

A. IPG only.
B. IPG and lead.

C.
IPG, wound irrigation and cleansing with antibiotic solution, and reimplantation of the IPG.

D. IPG and lead with simultaneous test stimulation of a new lead.
E. IPG with simultaneous placement of an IPG on the contralateral side.

B
This patient has an infected IPG. The bacterial infection of the artificial IPG will result in a bacterial biofilm that will also contaminate the lead. Both the IPG and lead should be explanted. Their risk of infection of a new device or new lead placement at the time of explantation is too high and should not be pursued. The proper management is explantation of all prosthetic material, treatment of the infection, and repeat test stimulation in the future when the patient is completely recovered. Vasavada SP, Rackley RR: Electrical stimulation and neuromodulation in storage and emptying failure, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 70, p 2039.

2014 - 30 A 35-year-old woman with no significant findings on medical history has a non-contrast CT scan performed for right flank pain. A 2 cm left adrenal mass (5 HU) is identified. The next step is:
A. observation.
B. repeat CT scan in three months.
C. biochemical work-up.
D. percutaneous biopsy.
E. gadolinium enhanced MRI scan.

C
The incidental adrenal lesion, or incidentaloma, is an adrenal mass 1 cm or larger in size discovered during radiographic imaging performed for indications other than adrenal disease. They are found in approximately four to six percent of the imaged population. Almost all of incidental adrenal lesions < 4 cm in size will prove to be benign in a patient without a known history of cancer. In patients with a known history of cancer, up to 50% will represent metastatic malignancy. This patient has an incidentally discovered adrenal adenoma that is probably benign based on its size and the HU of 5. Specifically, a non-contrast CT scan revealing a < 4 cm adrenal mass with HU < 10 carries a 98% specificity that the diagnosis is a benign adrenal adenoma. In masses with HU > 10, a contrast CT scan with early phase wash-out could be obtained to rule-out malignancy; it is, however, not necessary in this instance. Similarly, a gadolinium-enhanced MRI scan is not indicated and is not as good as CT scan when looking for adrenal hypervascularity. The current recommendation for the management of an incidentally discovered adrenal mass < 4 cm in size with an HU value of < 10 is a biochemical work-up to include cortisol and catecholamines. In patients with a history of hypertension, a hyperaldosteronemia should also be ruled out. Approximately 7% of these incidentalomas are metabolically active, 6% cortisol, and 1% sex or aldosterone secreting. Surgical resection is recommended for

all metabolically active adrenal tumors or adrenal tumors > 4 cm. Of note, in a seven year follow-up study of 231 patients with incidental adrenal tumors < 4 cm in size and HU < 10, less than 2% of the metabolically inactive adrenal tumors will either substantially grow or become metabolically active. Therefore, neither observation nor repeat CT scan in three months is appropriate. If the patient had a history of a prior malignancy, higher HU, or larger mass, then biopsy might be indicated. Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 57, p 1731.

2014 - 31 The coagulation of human semen is dependent on:
A. seminal vesicle-specific antigen.
B. PSA.
C. calcium.
D. fibrinogen.
E. factor XII.

A
The major clotting protein in semen has been termed semenogelin, which has been shown to be the seminal vesicle-specific antigen. These clotted proteins serve as the substrate for PSA which liquefies the semen. Calcium-binding substances, such as sodium citrate and heparin do not inhibit the coagulation. Blood clotting proteins such as prothrombin, fibrinogen, and factor XII are not present in semen. Berman DM, Rodriguez R, Veltri RW: Development, molecular biology, and physiology of the prostate, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 90, p 2568.

2014 - 32 A 12-year-old boy has painless terminal gross hematuria. Physical examination is normal. Urinalysis shows 3-5 RBC/hpf. Urine culture is negative. The next step is:
A. observation.
B. urine calcium to creatinine ratio.
C. non-contrast CT scan.
D. VCUG.
E. cystoscopy.

A
The clinical picture is consistent with benign urethrorrhagia based on terminal gross hematuria and normal physical examination. Urinalysis shows microscopic hematuria only, and the culture is negative. This condition is caused by transient inflammation of the bulbar urethral epithelium. The cause is not known. No further work-up such as calcium to creatinine ratio, non-contrast CT scan, VCUG, or cystoscopy is necessary since this is self-limiting. Palmer LS, Trachtman H: Renal functional development and diseases in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds):

CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 112, p 3005.

2014 - 33

A 49-year-old man with a continent cutaneous reservoir has a KUB as shown. He has good continence. Serum creatinine is 1.4 mg/dl. Split renal function by renal scintigraphy is 10% right, 90% left. The next step is:

A. open extraction of reservoir stones.
B. percutaneous extraction of reservoir stones.
C. percutaneous extraction of reservoir and renal stones.
D. open extraction of reservoir stones and right nephrectomy.
E. revision of reservoir and right nephrectomy.

D

The radiograph reveals a staghorn stone in the right kidney and several large stones in the Indiana Pouch. SWL or percutaneous extraction of the pouch stones does not address the renal calculi. The staghorn stone needs to be treated as well, an untreated staghorn stone risks urosepsis. Since the right kidney is contributing little to the patientÆs adequate renal function, nephrectomy is recommended over stone removal procedures that leave the kidney in place. Though percutaneous extraction of pouch stones is recommended, open surgical extraction is a good alternative with this large stone burden. In a urinary diversion with good continence, pouch revision is not necessary. The patient should be encouraged to catheterize and irrigate the pouch more frequently. L'Esperance JO, Sung J, Marguet C, et al: The surgical management of stones in patients with urinary diversions. CURR OPIN UROL 2004;14:129-134. Preminger GM, Assimos DG, Lingeman JE, et al: AUA guideline on management of staghorn calculi: Diagnosis and treatment recommendations. STAGHORN CALCULI, American Urological Association Education and Research, Inc, 2005.
http://www.auanet.org/education/guidelines/staghorn-calculi.cfm

2014 - 34

A 55-year-old woman has new onset moderate left hydronephrosis on non-contrast CT scan. Twenty years earlier, she underwent cystectomy and ileal conduit for a neurogenic bladder. Her serum creatinine is 1.4 mg/dl. The next step is:

A. observation.
B. urine cytology.
C. loopogram.
D. percutaneous nephrostomy.
E. looposcopy with catheterization of the left ureter.

C
Some hydronephrosis is expected after ileal conduit urinary diversion. Without a history of malignancy, computed tomography with contrast is not necessary. Loopography is the recommended next step with the new onset of hydronephrosis. It can assess for reflux into the left kidney. If there is free reflux, then obstruction is unlikely. If reflux is absent, then diuretic renal scintigraphy can be used to assess for obstruction. If obstruction is present, percutaneous nephrostomy can drain the kidney and allow the system to be studied. Looposcopy with ureteral catheterization is unlikely to succeed if the system is obstructed, and is unnecessary if it is not obstructed. Fulgham PF, Bishoff JT: Urinary tract imaging: Basic principles, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 4, pp 108-109.

2014 - 35

A 26-year-old infertile man has an ejaculate volume of 0.9 ml, sperm count of 10 million/ml, and 20% motility. Physical examination and hormonal evaluation are normal. The next step is:

A. antisperm antibody testing.
B. semen culture.
C. post-ejaculatory urinalysis.
D. TRUS.
E. scrotal Doppler ultrasonography.

C
The patient's evaluation reveals oligoasthenospermia with low ejaculate volume without any obvious cause. Post-ejaculatory urinalysis (PEU) is the best next step in order to identify a correctable cause for this patient's semen abnormalities. Hamster egg penetration test and antisperm antibody testing are useful for prognostic purposes but will not identify a correctable abnormality. Post-coital test is helpful in patients with isolated volume problems but would not be helpful in patients with oligoasthenospermia. Scrotal ultrasonography for subclinical varicocele is not indicated. TRUS may be considered if the PEU is negative but should not be considered first since it is more invasive than a PEU. Jarow J, Sigman M, Kolettis PN, et al: The optimal evaluation of the infertile male: AUA best practice statement revised, 2010. OPTIMAL EVALUATION OF THE INFERTILE MALE, American Urological Association Education and Research, Inc, 2010. http://www.auanet.org/education/guidelines/male-infertility-d.cfm

2014 - 36

A 70-year-old man is undergoing radical cystectomy and continent orthotopic urinary diversion for muscle-invasive high-grade urothelial carcinoma. During lymphadenectomy, a suspicious, firm 1.5 cm positive external iliac lymph node is confirmed to be positive for metastasis. The next step is:

A. abort surgery and treat with chemotherapy and XRT.
B. abort surgery and treat with chemotherapy followed by cystectomy.
C. perform lymphadenectomy and treat with chemotherapy and XRT.
D. complete surgery but perform an ileal conduit urinary diversion.
E. complete surgery as planned.

E
At the time of radical cystectomy, suspicious lymph nodes can be encountered. Approximately 25% of patients will ultimately have positive lymph nodes at the time of radical cystectomy. If the suspicious node(s) can be safely resected and the volume of suspicious lymph nodes is limited, it is reasonable to continue the cystectomy and continent urinary diversion. The patient will benefit from the local control of the lymphadenectomy and cystectomy. There is no evidence that stopping the surgery to treat with neoadjuvant chemotherapy or chemotherapy and radiation therapy is superior to completing the cystectomy. Positive lymph nodes are not a contraindication to continent urinary diversion. Lerner SP, Sternberg CN: Management of metastatic and invasive bladder cancer, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 82, p 2360.

2014 - 37
Three months after placement of a three-piece inflatable penile prosthesis, a patient has persistent penile shaft pain with inflation. Physical examination of the penis and scrotum is normal. The next step is:

A. pelvic and scrotal MRI scan.
B. cystourethroscopy.
C. 500 mg cephalexin BID for 30 days.
D. glansplasty.
E. revision of reservoir with a lock out valve.

A
This patient complains of pain only when the device is inflated during intercourse which may indicate that the cylinders are too large and are buckling, causing pain. MRI scan with the prosthesis inflated is the best imaging modality to prove the possible size discrepancy and buckling is the next step. If the diagnosis is confirmed, revision of the penile prosthesis with placement of smaller cylinders will usually resolve the problem. Penile infection following prosthetic placement usually has associated physical signs of infection (warmth, tenderness, erythema, etc.) that exist in both the flaccid or erect state. An SST deformity (floppy glans) is usually well-described by a patient and can be confirmed by physical examination. It can be repaired by moving the glans onto the distal portion of the cylinders with a glansplasty. Cystourethroscopy is indicated in the presence of voiding symptoms and/or possible infection of the penile prosthesis to rule out urethral

erosion, but is not indicated in patients with pain only on inflation. Revision with a lock-out valve would only be useful in cases of autoinflation. Kirkemo A: Complications of urologic surgery, COMPLICATIONS OF PENILE SURGERY, ed 3. Smith and Ehrlich, 1999, chap 39, p 541. Montague DK: Prosthetic surgery for erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 27, p 787.

2014 - 38
In patients with uric acid stones, the primary underlying metabolic defect is:

A. hyperuricosuria.
B. hyperuricemia.
C. low urine pH.
D. low urine volume.
E. RTA.

C
Although hyperuricosuria, low urine pH, and low urine volume are all important contributors to uric acid stone formation, a persistently acid urine (pH < 5.5) is the most important determining factor for uric acid stones. Although hyperuricemia is the hallmark of primary gout, not all patients with uric acid stones have either hyperuricemia or gout. Renal tubular acidosis is associated with high rather than low urine pH, hyperchloremia, and hypokalemia. Knudsen BE, Beiko DT, Denstedt JD: Uric acid urolithiasis, Stoller ML, Meng MV (eds): URINARY STONE DISEASE, Totowa NJ, Humana Press, 2007, chap 16, pp 299-301.

2014 - 39 A seven-year-old boy has had multiple repairs for penoscrotal hypospadias. He has recurrent lower UTIs and post-void dribbling. A renal ultrasound is normal. A pelvic ultrasound is shown. The most likely diagnosis is:
A. cecoureterocele.
B. ectopic ureter.
C. Cowper's duct cyst.
D. prostatic utricle.
E. bladder diverticulum.

D
In boys with proximal hypospadias, the prostatic utricle is often enlarged. In a female, this would represent the distal one-third of the vagina. The utricle is of urogenital sinus origin. While an ectopic ureter or bladder diverticulum could have a similar appearance on ultrasound, they generally are not midline in location. Ectopic ureter or bladder diverticulum are not seen commonly with hypospadias. A cecoureterocele would have a bladder deformity in addition to a suburethral extension. A Cowper's duct cyst or

syringocele should be confined to the bulbous or prostatic urethra where Cowper's ducts drain. Snodgrass WT: Hypospadias, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 130, p 3506.

2014 - 40

A 45-year-old man undergoes a partial penectomy for a 3 cm, grade 3, squamous cell carcinoma of the penis. Pathology reveals invasion of the corpus cavernosum and negative margins. On exam, he has matted firm 6 cm right inguinal lymph nodes and a CT scan of the chest, abdomen, and pelvis reveals right sided inguinal adenopathy but no other metastases. The next step is:

A. percutaneous biopsy of the inguinal lymph nodes.
B. right inguinal lymph node dissection.
C. bilateral inguinal lymph node dissection.
D. bilateral inguinal and pelvic lymph node dissection.
E. neoadjuvant chemotherapy.

E

Neoadjuvant platinum-based chemotherapy is indicated for patients with difficult to resect matted or fixed inguinal lymph nodes from metastatic penile cancer. The neoadjuvant chemotherapy should reduce the size of the nodes and enhance their resectability. Following neoadjuvant chemotherapy, the patient should have a bilateral inguinal and pelvic lymphadenectomy. A percutaneous biopsy is not necessary in this setting. Pettaway CA, Lance RS, Davis JW: Tumors of the penis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 34, p 926.

2014 - 41 Pyospermia in an infertile man commonly suggests:
A. a sexually transmitted infection.
B. UTI.
C. antisperm antibodies.
D. functional sperm damage.
E. failure to retract foreskin.

D

Leukocytes are often present in the semen of infertile men. They are seldom due to documentable infection or antisperm antibodies. They do often indicate functional damage from DNA fragmentation to sperm membrane lipid peroxidation from reactive oxygen species released from the leukocytes. Leukocytes can occur with UTIs, but unless urine is in the semen, this is an unlikely source. Sexual transmitted infections can also lead to leukocytes in semen and this does need to be ruled-out, however, even PCR DNA testing for sexual transmitted pathogens are often negative verifying the situation is most

commonly idiopathic. Sabanegh E, Agarwal A: Male infertility, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 622. Lackner JE, Herwig R, Schmidbauer J, et al. Correlation of leukocytospermia with clinical infection and the positive effect of anti-inflammatory treatment on semen quality. FERTIL STERIL 2006;86:601-605. Jarow J, Sigman M, Kolettis PN, et al: The optimal evaluation of the infertile male. AUA BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2010. http://www.auanet.org/education/guidelines/male-infertility-d.cfm

2014 - 42

A three-year-old girl undergoes an upper pole heminephrectomy for an ectopic ureter. Three days later, she has worsening pain, fever, and hematuria. The next step is:

A. observation.
B. Doppler ultrasound.
C. retrograde pyelogram.
D. CT angiogram.
E. ureteral stent.

B
The symptoms suggest either a urinoma or vascular injury to the lower pole segment, and is best evaluated with Doppler ultrasound. Pain, fever, and hematuria are common early, but should improve in the first 48-72 hours. Retrograde pyelogram and ureteral stent would be indicated for documented unresolving urinoma. CT angiogram has the disadvantage of radiation exposure without added clinical information that Doppler ultrasound would provide. Peters CA, Schlussel RN, Mendelsohn C: Ectopic ureter, ureterocele, and ureteral anomalies, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 121, p 3257.

2014 - 43

During performance of a transobturator midurethral polypropylene sling, the trocar normally passes through the:

A. ischiorectal fossa.
B. obturator *canal*.
C. sartorius muscle.
D. bulbospongiosus muscle.
E. ischiocavernous muscle.

A
During placement of an obturator sling, regardless of approach, the trocar should pass

through the ischiorectal fossa. It passes through the obturator foramen but not the obturator canal. It does not normally pass through any of the other listed structures. An outside-in transobturator passage traverses the gracilis muscle, adductor longus and brevis muscles, obturator externus muscle, obturator membrane, and obturator internus muscle. The gracilis muscle adducts and flexes the hip. The adductor longus and adductor brevis muscles adduct the thigh. The obturator externus and obturator internus muscles aid with thigh adduction and lateral rotation. Structures that affect medial thigh rotation are not traversed with a transobturator approach. Karram MM, Dmochowski RR, Reynolds WS: Transobturator synthetic midurethral slings, Karram MM (ed): SURGERY FOR URINARY INCONTINENCE: FEMALE PELVIC SURGERY VIDEO ATLAS SERIES, Philadelphia, Elsevier Saunders, 2013, chap 7, p 83. Dmochowski RR, Padmanabhan P, Scarpero HM: Slings: Autologous, biologic, synthetic, and midurethral, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 73, p 2115.

2014 - 44

A 45-year-old, otherwise healthy woman, has mild left CVA tenderness, bacteruria, and a temperature of 38.8_ C. She is able to take oral fluids. The next step is urine culture and:

A. inpatient I.V. antibiotic therapy.
B. abdominal and pelvic CT scan.
C. renal ultrasonography.
D. outpatient therapy with oral nitrofurantoin.
E. outpatient therapy with an oral fluoroquinolone.

E

In patients with an acute uncomplicated pyleonephritis, hospitalization is not required if they are able to maintain oral hydration. These patients should have a urine culture and sensitivity obtained and empirical antimicrobial therapy should be initiated immediately. Fluoroquinolones and TMP-SMX are excellent choices. Nitrofurantoin is effective in urine, but does not obtain therapeutic levels in most body tissues and is therefore not preferred for UTIs. Upper tract imaging is not required when uncomplicated pyelonephritis is suspected. However, imaging should be considered if the patient does not respond to antibiotic therapy within 72 hours, or in the presence of specific indications suggestive of a complicated UTI such as diabetes mellitus, immunosuppression, and history of nephrolithiasis or symptoms suggestive of urinary tract obstruction. Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10, p 292.

2014 - 45

A 70-year-old man undergoes a difficult radical cystectomy for high-risk bladder cancer. His perioperative course is complicated by hypotension managed with crystalloid, two units of packed RBC, vasopressors, and

intensive care monitoring. He later develops severe renal insufficiency requiring dialysis. According to the Clavien-Dindo Classification, his surgical complication grade is:

A. II.
B. IIIa.
C. IIIb.
D. IVa.
E. V.

D
The Clavien-Dindo classification of surgical complications is largely becoming the standard system for reporting adverse events after surgery that deviate from the normal postoperative course. As the patient required dialysis, due to single organ dysfunction, he would be considered grade IVa. The classification is: Grade I: Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic, and radiological interventions. Grade II: Requiring pharmacological treatment with drug other than such allowed for grade 1 complications. (Includes blood transfusion and TPN) Grade III: Requiring surgical, endoscopic or radiological intervention. Grade IIIa: Intervention not under general anesthesia. Grade IIIb: Intervention under general anesthesia. Grade IV: Life-threatening complication. Grade IVa: Single organ dysfunction. Grade IVb: Multiorgan dysfunction. Dindo D, Demartines N, Clavien P: Classification of surgical complications. ANN SUR 2004;240:205-213.

2014 - 46
A 57-year-old woman complains of stress urinary incontinence and pelvic pressure. On exam, she is noted to leak with Valsalva. Relevant pelvic organ prolapse quantification (POP-Q) exam points reveal Aa and Ba at -3, Ap at +1, Bp at +2, and C at 0. The correct surgical procedure is a mid-urethral sling:

A. only.
B. with anterior repair.
C. with posterior repair.
D. with anterior and apical vault repair.
E. with posterior and apical vault repair.

E
Mid-urethral sling is warranted due to visualization of leak with Valsalva. Additionally, POP-Q exam reveals both posterior (Bp +2 notes most distal portion of posterior vaginal wall is 2 cm beyond the hymen) and apical prolapse (C at 0 notes vaginal cuff is at the hymen). The anterior vaginal wall is well supported (Aa and Ba -3). A posterior repair and procedure for apical prolapse is indicated. Kobashi KC: Evaluation of patients with urinary incontinence and pelvic prolapse, Wein AJ, Kavoussi LR, Novick AC, Partin

AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 64, p 1900.

2014 - 47 A 32-year-old woman complains of a malodorous fishy vaginal discharge. She has a single male partner and uses an intrauterine device for contraception. The next step is:
A. remove intrauterine device.
B. metronidazole for patient.
C. metronidazole for patient and partner.
D. ciprofloxacin for patient.
E. ciprofloxacin for patient and partner.

B
Bacterial vaginosis results from an alteration of normal vaginal flora with a predominance of Lactobacillus species and high concentrations of anaerobic bacteria. Diagnosis can be confirmed with identification of clue cells, a homogenous vaginal discharge, a vaginal pH > 4.5, and a malodorous fishy vaginal discharge. Risk factors may include multiple sexual partners, a new sexual partner, use of an intrauterine device, and douching. Treating the patient is as effective as treating the patient and partner. Symptoms may recur in 1/3 of patients after treatment. Metronidazole is the treatment of choice. Colli E, Landoni M, Parazzini F: Treatment of male partners and recurrence of bacterial vaginosis: A randomized trial. GENITOURIN MED 1997;73:267-270. Frenkl T, Potts J: Sexually transmitted diseases, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 13, p 415.

2014 - 48
A ten-year-old boy undergoes ureteroscopic stone extraction for a 1 cm right distal ureteral stone. After placing a guidewire, a 6.5 Fr semirigid ureteroscope will not pass easily at the ureteric orifice. The next step is:

A. place ureteral stent and retry three days later.
B. dilate the ureteric orifice.
C. SWL.
D. percutaneous stone extraction.
E. laparoscopic ureterolithotomy.

B
When the semirigid ureteroscope will not pass easily over a guidewire in a prepubertal child, the next step is to perform a ureteric orifice dilation using either coaxial dilators or balloon dilator. Studies have demonstrated that ureteric dilation at the time of ureteroscopy is safe in children. After dilation, ureteral access sheath may also be used to minimize trauma. If the dilators do not pass easily, then placing a ureteral stent for passive dilation for several weeks is appropriate, but dilation should be tried first to avoid

second anesthesia. Flexible ureteroscope is comparable in size (6.9 Fr) to the 6.5 Fr semirigid scope and may not offer any additional advantage in passing it up the ureter. Furthermore, a smaller working channel may make the stone fragmentation and extraction more difficult. SWL, percutaneous stone extraction, and laparoscopic ureterolithotomy are inappropriate for a distal ureteral stone. Ost MC, Schneck FX: Surgical management of pediatric stone disease, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 135, pp 3671-3678.

2014 - 49

A 53-year-old man complains of four months of pain with erections, poor tumescence, and a 30 degree dorsal penile curvature. Physical examination reveals a 1 cm dorsal plaque. The next step is:

A. reassurance and observation.
B. treatment with sildenafil.
C. intracavernous injection therapy.
D. tunical plication.
E. plaque excision and grafting.

B

Many think that the clinical incidence of Peyronie's disease is increasing. The increase however may be associated and coincide with the increased use of erection-enhancing medications. Phosphodiesterase type 5 (PDE5) inhibitor medications are not contraindicated in the treatment of Peyronie's disease, while intracavernous injection therapy has been linked to the development of penile fibrosis. There has never been any suggestion that PDE5 inhibitors are in any way directly causally related to the development of Peyronie's disease, nor is there suggestion that their use would worsen the course of Peyronie's disease. Data is emerging to suggest that certain endothelial impairment may be reversed with the initiation of PDE5 inhibitor therapy. This patient has erectile dysfunction (ED) and it is reasonable to treat the ED with sildenafil. Reassurance will not improve his ED and surgical correction is not indicated early in the disease course. Jordan GH, McCammon KA: Peyronie's disease, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 28, p 801.

2014 - 50 A patient is undergoing fluoroscopy for a ureteroscopic procedure. The fluoroscopic set-up which will result in the least amount of scatter radiation to the operating room personnel is illustrated in the diagram labeled:

A. A.
B. B.
C. C.

D. D.
E. E.

C
The image intensifier should be positioned above the patient and the x-ray tube below the patient to minimize radiation exposure (Images A, B, C). The x-ray tube should be positioned as far from the patient as feasible. (Image C) Angulation of the C-arm to a lateral or oblique position (Images B, D) increase the dose rate due to the increased body mass thickness that must be penetrated, and also brings the x-ray tube closer to the patient. Wagner LK, Archer BR: Minimizing risks from fluoroscopic x rays: Bioeffects, instrumentation, and examination, PARTNERS IN RADIATION MANAGEMENT, ed 4. Houston, TX, 2004.

2014 - 51 A 36-year-old woman with a horseshoe kidney has a symptomatic 1.8 cm left lower calyceal stone. The next step is:

A. SWL.
B. open nephrolithotomy.
C. ureteroscopic stone extraction.
D. ureteral stent and SWL.
E. percutaneous nephrolithotomy.

E
Symptomatic lower calyceal stones clear poorly after fragmentation with SWL, especially in horseshoe kidneys. Ureteroscopic fragmentation and stone extraction in these malrotated kidneys can be difficult. Residual stone fragments are unlikely to pass spontaneously and the likelihood of rendering the patient stone-free is limited. Percutaneous renal access can be performed safely through a superior and posterior calyceal puncture. The entry site of the puncture needle is more medial, just lateral to the paraspinous musculature, in comparison to inferior pole punctures in normally positioned kidneys. An inferior calyceal puncture in a horseshoe kidney could be dangerous due to its medial, more anterior and inferior location. Even in thin patients, one may need to utilize longer instruments including flexible cystoscopes, flexible or rigid ureteroscopes, or extra-long nephroscopes. Percutaneous renal access through a superior pole puncture can be performed in a safe fashion and is the most optimal route to render the patient stone free. The only variable identified that decreases the efficacy of PCNL in a horseshoe kidney is the presence of a Staghorn calculus. Stone-free rates are 84% with a primary PCNL and rise to 93% after a second-look nephroscopy. Skolarikos A, Binbay M, Bisas A, et al: Percutaneous nephrolithotomy in horseshoe kidneys: Factors affecting stone-free rate. J UROL 2011;186:1894-1898. Miller NL, Matlaga BR, Handa SE, et al: The presence of horseshoe kidney does not affect the outcome of percutaneous nephrolithotomy. J ENDOUROL 2008;22:1219-1225.

2014 - 52

During placement of a two-piece inflatable penile prosthesis, the glans penis is noted to have poor support and minimal movement over the top of

the prosthetic with a mild

SST

deformity. The best treatment is:

A. observation and cycling.
B. glansplasty.
C. placement of an additional 1 cm rear tip extender.
D. upsize the prosthesis.
E. convert to a three-piece inflatable prosthesis.

B
Poor support of the glans penis by cylinder or rod tips leads to a drooping appearance of the glans, in which it appears to flop over the prosthesis. This deformity may result from inadequate distal dilation, too short cylinders, or in the case of minor deformity, variations in anatomy where the corpora cavernosum does not extend completely under the glans. For a severe deformity, definitive correction involves removing both cylinders, perforating the distal corpora with scissors, resizing, and then inserting longer cylinders or the same cylinders with longer rear tip extenders. For mild defects, like in this patient, dorsal plication of the glans back onto the shaft of the penis (glansplasty) is preferable when there are minor but otherwise bothersome degrees of poor glanular support. Changing to a three-piece prosthesis is not needed and adding a larger cylinder (upsizing) could result in pain and buckling. Montague DK: Prosthetic surgery for erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 27,

2014 - 53 A 50-year-old woman has azotemia and an obstructed solitary kidney. A percutaneous nephrostomy is placed and urine output is initially 200 ml/hr. She receives I.V. fluids. Her renal function improves over the next four days but the diuresis is now more pronounced. Vital signs and neurocognitive exam are normal. The next step is:
A. oral vasopressin.
B. I.V. vasopressin.
C. hydrochlorothiazide.
D. decrease I.V. fluids.
E. increase I.V. fluids.

D
This patient's persistent, post-obstructive diuresis is most likely iatrogenic. The brisk diuresis that accompanies release of obstruction may represent a physiologic response to the expansion of extracellular fluid volume occurring during the period of obstruction in many patients. This may be perpetuated by overzealous administration of intravenous

fluids after relief of the obstruction. It would be safe in this clinically stable, neurologically intact patient to decrease intravenous fluids, allow her free access to fluid, and observe her closely for signs of hypovolemia and electrolyte imbalance. Hydrochlorothiazide is a diuretic and may worsen her diuresis. Vasopressin (ADH) acts to increase water reabsorption at the collecting duct and is not indicated in this scenario. Singh I, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 40, pp 1107-1108.

2014 - 54

A 22-year-old man with history of NSGCT completed chemotherapy that included ifosfamide two weeks ago. He has weakness and lethargy. Serum labs reveal Na 137 mEq/l, Cl 135 mEq/l, CO2 12 mEq/l, K 2.7 mEq/l, and creatinine 0.9 mg/dl. Blood gas reveals serum pH 7.3. Urinalysis reveals pH 7.6. The next step is:

A. I.V. Ringer's lactate.
B. I.V. D5W with 20 mEq/l KCL.
C. I.V. hydrocortisone.
D. oral spironolactone.
E. oral potassium citrate.

E

The clinical presentation is that of weakness and lethargy following the course of chemotherapy accompanied by significant hypokalemia and hyperchloremic metabolic acidosis. Despite the acidosis, his urinary pH is alkaline, indicating inability to acidify urine. The most likely diagnosis is a drug-induced renal tubular acidosis (RTA) type I (distal), in which there is a failure of ammonium secretion in the distal tubule. The type II (proximal) RTA represents a defective reabsorption of bicarbonate in the proximal tubule. Although distal RTA can be genetic, this most likely represents an acquired condition due to ifosfamide chemotherapy. The treatment is oral potassium and bicarbonate supplementation. I.V. fluid hydration is unnecessary with no evidence of dehydration, and normal creatinine with no evidence of contraction alkalosis. The use of steroids or diuretics would be detrimental to this patient. Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 45, p 1275.

2014 - 55

A 64-year-old man has a radical cystectomy and ileal neobladder. Ten days after surgery, 2.5 liters of bilious fluid drains from his incision over 24 hours. He is otherwise stable. The next step is:

A. observation.

B. discontinue diet and start TPN.
C. oral loperamide.
D. oral octreotide.
E. surgical repair.

B
This patient has developed a high output (> 500 ml per day) enterocutaneous (EC) fistula. Management of high output EC fistula when they develop is extremely challenging and complex due to significant fluid and electrolyte loss and coexisting malnutrition. Emergent surgical repair in this patient would be highly technically demanding due to significant perisurgical reactive fibrosis with healing greatly impaired by concurrent malnutrition. Indeed up to 70% of patients with high output fistulae have concurrent malnutrition with documented hypoalbumemia, the latter of which is a significant prognostic factor. The loss of large amounts of fluid in the immediate postoperative period can lead to severe dehydration with oral intake frequently worsening the high output. The immediate step is to discontinue oral intake and initiate TPN. Agents that can decrease bowel motility (loperamide, diphenoxylate/atropine, etc.) can be helpful if the high output continues after the initial steps are taken. Although octreotide can be used to decrease pancreatic secretions, prospective double blinded placebo controlled trials demonstrated no significant reduction in postoperative EC fistula fluid losses nor did they find an increased rate of spontaneous EC closure. It should therefore only be used if high EC fistula outputs continue after initial measures fail. Pritts TA, Fischer DR, Fischer JE: Postoperative enterocutaneous fistula. SURGICAL TREATMENT: EVIDENCE BASED AND PROBLEM ORIENTED. Munich Zuckschwerdt, 2001. Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 85, p 2411. Schecter WP: Management of enterocutaneous fistulas. SUR CLIN N AM 2001;91:481-491. Scott NA, Finnegan S, Irving, MH: Octreotide and postoperative enterocutaneous fistulae: A controlled prospective study. ACTA GASTRO-ENEROLOGIC BELICA 1993;56:266-270.

2014 - 56 A 26-year-old infertile body builder with a five year history of heavy anabolic steroid use is azoospermic 12 months after discontinuing all steroids. His serum testosterone is 150 ng/dl and FSH is normal. The next step is:
A. observation.
B. testosterone replacement.
C. hCG.
D. testicular biopsy.
E. clomiphene citrate.

C
The non-medical use of anabolic steroids by athletes is potentially a significant cause of infertility in male adolescents and adults. It has been estimated that 3-12% of male athletes of high school age in the United States have used steroids. Infertility associated

with anabolic steroid use commonly presents as oligospermia or azoospermia along with abnormalities of sperm motility and morphology. As with many of the other steroid side effects, the semen parameter deficits are thought to be reversible and consequently, the discontinuation of all steroids is the first course of therapy. Unfortunately, some steroid abusers develop a chronic anabolic-induced hypogonadism syndrome/state. Successful gonadotropin (hCG) replacement is the best therapy when this occurs. This patient has already been off steroids with no return of sperm after one year, therefore, continued observation is not likely to work at this point and a trial of hCG therapy is indicated. Testosterone supplementation will only continue to suppress the central axis (decrease FSH and LH release) and perpetuate the problem. Clomiphene citrate might work by blocking testosterone and estradiol feedback on the central axis and stimulate LH/FSH release, but will not be as effective as hCG. Testis biopsy is not needed at this time, but might be needed if the patient does not respond to hormonal manipulation and maturation arrest is suspected. Fronczak CM, Kim ED, Barqawi AB: The insults of illicit drug use on male fertility. J ANDROL 2012;33:515-528. de Souza GL, Hallak J: Anabolic steroids and male infertility: A comprehensive review. BJU INT 2011;108:1860-1865. Sabanegh E, Agarwal A: Male infertility, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 21, p 639.

2014 - 57 A two-day-old boy has gross hematuria. He was born at 38 weeks gestation via Caesarian section for failure to progress. Ultrasound shows bilaterally enlarged kidneys without cysts or hydronephrosis and a normal bladder. Hemoglobin and platelet count are low. The next step is:
A. observation.
B. I.V. hydration.
C. anticoagulation.
D. VCUG.
E. CT angiogram.

B
Renal venous thrombosis is suggested in the neonate with enlarged kidneys, hematuria, anemia, and thrombocytopenia, often with a history of prolonged delivery and prematurity. Thrombosis is peripheral and initial therapy should be aimed at support and I.V. fluid administration in order to treat the underlying dehydration. Observation would be inadequate with the thrombotic phenomenon likely to escalate in severity with extension of the thrombus. Anticoagulation is indicated if the process extends beyond the renal vein(s). The clinical scenario presented and the imaging reported of bilaterally enlarged kidneys on ultrasound are sufficient to make the diagnosis and no further imaging is necessary. Lee RS, Borer JG: Perinatal urology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 114, p 3060.

2014 - 58
A 38-year-old woman developed a 10 mm vesicovaginal fistula following a

complicated hysterectomy. She has failed two prior attempts at repair, one transvaginally using a Martius flap and the other transabdominally using an omental flap. Upper tracts are normal. The next step is:

A.
cystoscopy, fulguration of the fistula tract, and suprapubic tube drainage.

B. cystoscopy with fibrin glue application to the fistula.
C. repeat vaginal repair with contralateral Martius fat pad graft.
D. abdominal repair with rectus muscle interposition.
E. ileal conduit.

D
This patient has failed two previous attempts at fistula closure following a complicated surgery. One would expect significant scarring in her pelvis and anticipate a difficult dissection for exposure of the fistula. Although cystoscopy and fulguration of the fistula tract is appealing for its surgical ease and is associated with a high rate of success (> 66%) for fistula < 7 mm in size, when used as either a primary or secondary treatment modality, it has no role in the management of large > 7 mm vesicovaginal fistula. Retrograde endoscopic injection of fibrin glue is a minimally invasive approach that may avoid the morbidity of an open surgery. It has been used to close complex fistulas up to 15 mm in size. Although short term outcomes less than one year are encouraging, approximately 75% successful long-term follow-ups reveal the success of this technique breaks down with time. Whether late break downs can be successfully retreated with fibrin glue injection remains to be clarified. Clearly, with each subsequent surgery, the likelihood of successful repair decreases. Optimal success is achieved with a tension-free primary bladder closure with an interpositional graft between the bladder and vaginal vault. Of the choices, the abdominal approach with rectus muscle graft interposition would provide the best technical option and be considered the gold standard in a patient who has undergone repeated failed attempts at vesicovaginal fistula closure. An ileal conduit is not indicated in this otherwise healthy young woman. Rovner ES: Urinary tract fistulae, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, p 2241. Stovsky MD, Ignatoff JM, Blum MD, et al: Use of electrocoagulation in the treatment of vesicovaginal fistulas. J UROL 1994;152:1443-1444. Shah SJ: Role of day care vesicovaginal fistula fulguration in small vesicovaginal fistula. J ENDOUROL 2010;10:1659-1660. Shivan MK, Alamdari DH, Ghorefi A: A novel method for iatrogenic vesicovaginal fistula treatment. J UROL 2013;189:2125-2129. Safan A, Shaker H, Abdelaal A, et al: Fibrin glue versus martius flap interposition in the repair of complicated obstetric vesicovaginal fistula: A prospective multi-institutional randomized trial. NEUROUROL URODYN 2009;28:438-441.

2014 - 59
A 19-year-old man has painful severe left scrotal swelling after being kicked. The right testicle is palpably normal, but the left testicle and

epididymis are nonpalpable secondary to a left hemiscrotal hematoma. The next step is:

A. observation.
B. nuclear medicine scan.
C. MRI scan.
D. testicular ultrasound.
E. surgical exploration.

E
The history and physical examination of this patient is highly suspicious for a testis fracture. Immediate exploration is indicated without the need for scrotal imaging for a definitive diagnosis. Indeed, ultrasonography should not deny or delay surgical exploration if the physical examination findings dictate a possible fracture. The overall accuracy of ultrasonography for detection of traumatic testis fracture has been found to be highly operator dependent with both significant false positive and false negative rates found in the published literature. MRI scan has not been extensively studied, is costly, and could delay definitive treatment. Nuclear medicine scan will delay diagnosis and will not add useful information. Morey AF, Dugi DD III: Genital and lower urinary tract trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 88, p 2510.

2014 - 60
A four-year-old girl with bilateral grade 3 VUR has recurrent breakthrough UTIs despite continuous antibiotic prophylaxis. She undergoes a bilateral ureteroneocystostomy. According to the 2010 AUA Guideline on vesicoureteral reflux, the required step in postoperative management is:

A.
observation, postoperative imaging only required if additional UTIs occur.

B. renal ultrasound.
C. VCUG.
D. DMSA renal scan.
E. MAG-3 diuretic enhanced renal scan.

B
According to the most recently published AUA Guideline for the Management of VUR, the required step after an open-robotic surgical intervention for VUR is renal ultrasound. Ureteral obstruction can be clinically silent, and therefore, the absence of ureteral obstruction must be documented. Based on the rigorous meta-analysis performed on the available literature, the use of postoperative VCUG following an open robotic ureteral

reimplantation is considered optional. Renal ultrasonography obtained postoperatively will reveal Society of Fetal Urology (SFU) Grade 2 or higher hydronephrosis in approximately 25% of patients one month after a ureteral reimplantation and in 15% of patients three months after a ureteral reimplantation. The exact percentage of patients with postoperative hydronephrosis is dependent upon the percentage of patients with preoperative hydronephrosis, and the percentage of patents with preoperative grade of 4-5/5 VUR. If SFU Grade 2 or higher, hydronephrosis was noted preoperatively, approximately 60% resolve their hydronephrosis by three months, 30% improve, and the remainder are unchanged to slightly worsened. MAG-3 renal scan and VCUG can be obtained in individuals with persistent or worsening hydronephrosis. Evaluation of these patients will reveal persistent VUR in 4-8%, ureteral obstruction and/or bladder dysfunction (noncompliance) noted to be the cause of the hydronephrosis in approximately 1-2%. It is noteworthy that following injection of a bulking agent for treatment of VUR both a VCUG along with a renal ultrasound is recommended. DMSA scan is optional if additional febrile UTI's should occur. Peters CA, Skoog SJ, Arant BS Jr, et al: Management and screening of primary vesicoureteral reflux in children: AUA guideline. VESICOURETERAL REFLUX. American Urological Association Education and Research, Inc, 2010. http://www.auanet.org/education/guidelines/vesicoureteral-reflux-a.cfm Aboutaleb H, Bolduc S, Bagli DJ, et al: Correlation of vesicoureteral reflux with degree of hydronephrosis and the impact of antireflux surgery. J UROL 2003,170:1560-1562. Ellsworth PI, Freilich DA, Lahey S: Cohen cross-trigonal ureteral reimplantation: Is a one-year postoperative renal ultrasound scan necessary after normal initial postoperative ultrasound findings? UROL 2008;71:1055-1058. Charbonneau SG, Tackett LD, Gray EH, et al: Is long-term sonographic followup necessary after uncomplicated ureteral reimplantation in children? J UROL 2005;174:1429-1431.

2014 - 61

During vaginal repair of a high-riding post-hysterectomy vesicovaginal fistula, the easiest tissue to interpose as a flap is:

A. anterior peritoneum.
B. posterior peritoneum.
C. omentum.
D. Martius fat pad graft.
E. gracilis.

B

Following hysterectomy, a high-riding vesicovaginal fistula (VVF) can often be repaired through a vaginal approach. A simple procedure to augment the repair is harvest of the posterior peritoneum which is often present around the cervical cuff. This can be carried up over the two-layer fistula closure and attached to cover the fistula. Omentum can easily be harvested through a trans-abdominal approach but is difficult with a vaginal incision. Myocutaneous and Martius flaps are used with extensive fistulas and are more challenging to harvest and transpose. Rovner ES: Urinary tract fistulae, Wein AJ,

Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 77, p 2240.

2014 - 62 A 42-year-old man has persistent ileus and fever after left PCNL. Nephrostogram demonstrates that the nephrostomy tube has traversed the colon in its passage into the renal pelvis. The next step is I.V. antibiotics and:

A. colostomy and drainage of the area.
B. colonic repair and drainage of the area.
C. removal of the nephrostomy tube.
D. withdraw nephrostomy into colon and place ureteral stent.
E. replace nephrostomy tube in a more posterior position.

D
Colonic perforation is a rare complication of nephrostomy tube placement, occurring in < 1% of patients. It most commonly occurs with lower pole nephrostomy tube placement in patients with malrotated kidneys and/or distended colons. Laparotomy is not necessary in the absence of clinical signs of peritonitis. Separate drainage of the colon and urinary system should resolve this problem. Gerspach JM, Bellman GC, Stoller ML, et al: Conservative management of colon injury following percutaneous renal surgery. J UROL 1997;49:831-836. El-Nahas AR, Shokeir AA, El-Assmy AM, et al: Colonic perforation during percutaneous nephrolithotomy: Study of risk factors. J UROL 2006;67:937-941.

2014 - 63
A six-year-old girl has gross hematuria after an MVC. CT scan of the abdomen shows a pelvic fracture and no evidence of renal or intra-abdominal injury. She is hemodynamically stable. Attempts to pass a urethral catheter are unsuccessful. Endoscopy reveals a tear through the bladder neck, vaginal laceration, and anterior rectal wall injury. The next steps are colostomy, suprapubic tube, and:

A. observation.
B. urethral catheter.
C. urethral catheter and extraperitoneal drain.
D.
urethral catheter, repair of vagina and rectum.

E.
repair of bladder neck, vagina, and rectum.

E
Bladder neck injuries in the setting of a pelvic fracture are more common in children than in adults and are frequently associated with injuries to the vagina and rectum. Immediate

repair of the bladder neck, urethra, and vagina, and diverting colostomy with rectal repair is recommended. Attempts at management with a temporary suprapubic tube, urethral catheters, and delayed repair is associated with a high incidence of persistent bladder neck incompetence, urinary fistula, pelvic abscess, and osteomyelitis. Thus, in a hemodynamically stable patient, immediate repair of all injuries through a combined suprapubic and perineal approach is recommended. Primary diversion with either percutaneous nephrostomy tubes or externalized ureteral stents and urinary catheters is appropriate when the patient is hemodynamically unstable and blood loss is life threatening. Husmann DA: Pediatric genitourinary trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 138, pp 3746-3749.

2014 - 64

A healthy 23-year-old woman has urinary hesitancy, urgency, a slow stream, and incomplete bladder emptying. A pressure flow urodynamic study reveals a compliant bladder with end fill detrusor pressures of 2 cm H2O at 350 ml capacity. There is pelvic floor activity noted on the EMG during voiding, with peak detrusor pressures of 50 cm H2O at the time of peak flow. Total volume voided was 150 ml, peak uroflow of 4 ml/min, average uroflow of 2 ml/min, and postvoid residual of 200 ml. The next step is:

A. physical therapy with biofeedback.
B. urethral dilation.
C. onabotulinumtoxinA injection of sphincter.
D. bladder neck incision.
E. sphincterotomy.

A

Dysfunctional voiding is characterized by involuntary contraction of the pelvic floor during voiding in a neurologically intact individual. This is clearly demonstrated by the increased EMG activity during voiding seen on this pressure flow urodynamic tracing. Treatment generally starts with conservative measures including pelvic floor physical therapy with biofeedback. Other theoretical options to consider include pharmacologic therapy (Valium or Baclofen) to relax the external sphincter. Some authors have reported success with the use of alpha-blockade, but theoretically, one would not expect an improvement in voiding with a medication that would more likely affect the internal sphincter/bladder neck than the pelvic floor. Urethral dilation is not widely advocated. OnabotulinumtoxinA injection and sphincterotomy, while targeting the proper area, would be very aggressive and certainly not recommended in a neurologically healthy patient as a first line treatment. Bladder neck incision would not treat pelvic floor dysfunction. Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, pp 1938-1939.

2014 - 65 The primary effect of parathyroid hormone (PTH) is to facilitate:
A.
1,25-dihydroxyvitamin D3 activity on the enteric epithelium.

B. calcium reabsorption in the renal tubule.
C. enzymatic activity of 25-hydroxylase.
D. conversion of 7-dehydroxycholesterol to Vitamin D3 (cholecalciferol).
E.
1,25-dihydroxyvitamin D3 activity on the renal tubule.

B
Calcium homeostasis involves four key components: serum calcium, serum phosphate (binds calcium thereby blocking calcium bioavailability), 1,25-dihydroxyvitamin D3, and parathyroid hormone (PTH). The major target organs for PTH action are the kidneys, skeletal system, and intestine. The primary effect of PTH is in the kidney, where it will act to block phosphate reabsorption in the proximal tubule (i.e., increase phosphate excretion) and promote calcium reabsorption in the ascending loop of Henle, distal tubule, and collecting tubule. PTH promotes bone resorption with subsequent calcium release. The final function of parathyroid hormone (PTH) is by activation of the enzyme 1-hydroxylase in the proximal tubules of the kidney. The enzyme 1-hydroxylase is a key component in the metabolism of vitamin D3 (cholecalciferol). Vitamin D3 (cholecalciferol) is formed in the skin when a cholesterol precursor, 7-dehydroxycholesterol, is exposed to ultraviolet light. Activation of vitamin D3 occurs when the substance undergoes 25-hydroxylation in the liver and 1-hydroxylation in the kidney. The enzyme 1-hydroxylase converts 25-hydroxyvitamin D3 to its most active metabolite, 1,25-dihydroxyvitamin D3. The primary action of 1,25-dihydroxyvitamin D3 is to promote gut absorption of calcium by stimulating formation of calcium-binding protein within the intestinal epithelial cells. Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, pp 1030-1031.

2014 - 66 The best way to identify a ureter that proves difficult to locate during the course of an extravesical reimplant is to:
A. identify the vas deferens and follow this laterally.
B. search ventral to the obliterated umbilical artery.
C. dissect along the ventral surface of the iliac vessels.
D. search the dorsal surface of the mobilized peritoneum.
E. dissect the lateral surface of the bladder.

C
In smaller patients with little perivesical fat and less pelvic vascular development, finding the ureter extravesically is fairly straight forward. For older patients and unusual cases, this can be challenging. The ureter courses dorsal to the obliterated umbilical artery, so

searching its ventral surface will not be effective. Finding the vas deferens is difficult and may result in damaging it, so this is also not advisable. The ureter may occasionally be adherent to the peritoneum as it is dissected, making this a low yield place to look initially. Extensive dissection of the bladder should be avoided as it may increase the risk of postoperative voiding dysfunction and urinary retention, especially if bilateral reimplant is performed. Dissecting slightly higher up to the level of the iliac vessels, one should be able to find the ureter as it courses on the ventral surface of both the artery and vein. It can then be followed distally to complete the procedure. Khoury AE, Bagli DJ: Vesicoureteral reflux, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 122, p 3301.

2014 - 67

A 37-year-old woman has urinary urgency that interrupts her work day. Urinalysis is normal. She does not wish to take medications. In addition to avoiding dietary bladder irritants, she should:

A. void as soon as she feels the urge.
B. perform repetitive rapid pelvic contractions (quick flicks) when she has a sense of urgency.
C.
perform slow, sustained pelvic floor contractions multiple times a day.

D. obtain a urine culture.
E. use an anti-incontinence pessary.

B
Rapid short pelvic contractions (termed,

quick flicks

) have been shown to decrease bladder overactivity and urinary urgency. This treatment is combined with teaching the individual to delay voiding in response to the urge to void. The principles behind these bladder drills are an attempt to

retrain

the bladder to overcome the voiding urgency. Patients are taught not to void

just in case

or when the urge hits, but rather to try to delay the void. Slow sustained pelvic floor contractions are utilized in the treatment of stress incontinence and are not as helpful in patients with urinary urgency. With a single negative urinalysis, a repeat urinalysis is reasonable, but a routine culture is not necessary at this point if the urinalysis remains

negative. For persistent irritative symptoms, consideration of mycoplasma/ureaplasma cultures, and/or cystoscopy if the patient would have a history of tobacco usage may be reasonable. An anti-incontinence pessary would not be helpful for urgency incontinence and might actually exacerbate the symptoms. Payne CK: Conservative management of urinary incontinence: Behavioral and pelvic floor therapy, urethral and pelvic devices, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 69, p 2033.

2014 - 68 Patients with cystine stones unresponsive to hydration and alkalization are best treated with:
A. N-acetylcysteine.
B. tris-hydroxymethyl amino methane (THAM).
C. alpha-mercaptopropionylglycine.
D. penicillamine.
E. acetohydroxamic acid.

C
Alpha-mercaptopropionylglycine (alpha-MPG) is an oral agent, first introduced in 1968, which reduces cystine stone formation. Approximately 25% of the oral dose appears in the urine and like penicillamine, participates in thiol-disulfide exchange with cystine, thus increasing the latter's solubility. Alpha-MPG appears to be as effective as penicillamine in reducing cystine excretion and significantly reduces the individual stone formation rate, while entailing less significant toxicity. N-acetylcysteine is not effective orally. Tris-hydroxymethyl amino methane is only used for percutaneous dissolution. Acetohydroxamic acid inhibits bacterial urease and is not indicated for cystine stones. Moe OW, Pearle MS, Sakhaee K: Pharmacotherapy of urolithiasis: Evidence from clinical trials. KIDNEY INT 2011;79:385-392. Claes DJ, Jackson E: Cystinuria: Mechanisms and management. PED NEPHROL 2012;27:2031-2038.

2014 - 69
Two weeks following a circumcision, a newborn has progressive swelling and ballooning of the penile skin with voiding. Physical exam reveals a trapped penis in which the glans is not visible and the overlying skin cannot be reduced. The next step is:

A. observation and parental reassurance.
B. topical steroid cream.
C. topical anesthetic and manual retraction of penile skin.
D. dorsal slit.
E. revision circumcision.

B
Newborns may have a buried penis in which there is poor fixation of the overlying skin at the base of the penis. When they are circumcised with a newborn clamp technique, a

trapped penis can develop in which the healing skin edges migrate distally over the glans, which in turn can cause an obstructing cicatrix. Resultant retention of voided urine can cause of ballooning of the penile skin. In severe cases, this can also give rise to significant infections and possible urinary retention. Conservative management with a topical steroid ointment (0.05-0.1% betamethasone) for six weeks will result in resolution of the cicatrix and spontaneous retraction of the overlying skin in up to two thirds of patients. In unresponsive cases or patients with more acute problems such as infection or retention, one can consider use of antibiotics and/or surgical intervention with a dorsal slit. If possible, one should avoid performing a revision circumcision in the acute setting because of the poor results that can result from reconstruction of the inflamed skin. Forced manual retraction should be avoided since there will be a significant risk for increased scarring and recurrence. Palmer JS, Elder JS, Palmer LS: The use of betamethasone to manage the trapped penis following neonatal circumcision. J UROL 2005;174:1577-1578. Palmer JS: Abnormalities of the external genitalia in boys, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 131, pp 3540-3541.

2014 - 70 A 48-year-old woman develops recurrent stress urinary incontinence one year following a midurethral sling. Pelvic examination reveals mild urethral hypermobility and urodynamics shows a Valsalva LPP of 40 cm H2O. The next step is:
A. pelvic floor muscle therapy.
B. off-label imipramine.
C. urethral bulking injection therapy.
D. retropubic bladder neck suspension (Burch).
E. pubovaginal sling.

E
The possibility of the presence of intrinsic sphincter deficiency (ISD) should be considered in patients with a history of recurrent stress urinary incontinence following anti-incontinence surgery. In the face of urethral hypermobility, a retropubic suspension (e.g. Burch) may be an option, but a pubovaginal sling is more effective and durable for ISD. Injection therapy would also be reasonable, but will likely not be as durable as a sling procedure in this relatively young woman. Pelvic floor muscle therapy is a consideration but is known to be less effective than surgery and is best used in patients with mild leakage. Imipramine is off-label and has the potential to cause cardiac effects. Although it may improve her continence, it is also unlikely to result in complete resolution of her symptoms. Dmochowski RR, Padmanabhan P, Scarpero HM: Slings: Autologous, biologic, synthetic, and midurethral, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 73, pp 2115-2116.

2014 - 71 A 26-year-old man has recurrent groin abscesses. Rectal examination is normal. He has a good urinary stream. The most likely

diagnosis is:
A. syphilis.
B. inflammatory bowel disease.
C. hidradenitis suppurativa.
D. chancroid.
E. granuloma inguinale.

C
Hidradenitis suppurativa is an inflammatory process involving *the apocrine glands*, most commonly in the groin, axillae, and buttock or below the breasts. They are sterile abscesses. Old scars and sinus tracts are common. Fistulae tracts and perineal abscesses are rare findings in inflammatory bowel disease. Syphilis and chancroid both present with superficial ulcerations. Granuloma inguinale presents with painful lymphadenopathy without abscesses. Link RE: Cutaneous diseases of the external genitalia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 15, pp 453-454.

2014 - 72 The nerve that is most likely to be injured during a psoas hitch for a tapered ureteral reimplantation is the:
A. obturator.
B. ilioinguinal.
C. genitofemoral.
D. femoral.
E. iliohypogastric.

D
The femoral nerve is of L2-L4 origin and has both motor and sensory components, providing sensation to the anterior thigh and motor innervation to the extensors of the knee. The femoral nerve travels within the belly and exits through the lateral aspect of the psoas muscle to pass under the ilioinguinal ligament. There are two potential injuries to the femoral nerve during a psoas hitch: the nerve can become entrapped from a suture placed at right angle to the muscle fibers and the direction of the nerve, or if performed by an open approach, the blades of a retractor can compress the psoas muscle and can result in a femoral nerve palsy. The ilioinguinal and genitofemoral nerves are easily identified during exposure for the psoas hitch and are readily mobilized away from the operative field. Chung BI, Sommer G, Brooks JD: Anatomy of the lower urinary tract and male genitalia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 2, p 47.

2014 - 73 The primary effect of intradetrusor onabotulinumtoxinA is to inhibit release of acetylcholine from:
A. presynaptic afferent nerves.
B. postsynaptic afferent nerves.

C. presynaptic efferent nerves.
D. postsynaptic efferent nerves.
E. sympathetic efferent nerves.

D
The primary target of onabotulinumtoxinA treatment is inhibition of acetylcholine release from postsynaptic parasympathetic efferent nerves to the detrusor muscle, resulting in transient paralysis of the detrusor muscle. The efficacy of the treatment, however, exceeds that of pure detrusor paralysis and is associated with a significant reduction in bladder sensation. The decrease in the afferent sensation (urgency) is due to localized inhibition of detrusor muscle ATP, substance P production along with a reduction in activity of afferent axonal capsaicin and purinergic receptors. The overall effect is a profound inhibition of both efferent acetylcholine release (primary) and interference with afferent neuronal mediators and receptors (secondary). Yoshimura N, Chancellor MB: Physiology and pharmacology of the bladder and urethra, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 60, p 1825. Apostolidis A, Dasgupta P, Fowler CJ: Proposed mechanism for the efficacy of injected botulinum toxin in the treatment of human detrusor overactivity. EUR UROL 2006;49:644-650.

2014 - 74
Five days after intercourse, a 40-year-old man develops a painful necrotic penile ulcer and painful inguinal lymphadenopathy. Gram stain of an exudate from the lesion reveals gram-negative coccobacilli. Dark-field examination and Tzanck smears are negative. The treatment of choice is:

A. penicillin.
B. tetracycline.
C. acyclovir.
D. azithromycin.
E. sulfisoxazole.

D
This patient has chancroid. According to the CDC, the drug of choice is a single dose of azithromycin (1 gram p.o.). Alternatively, erythromycin 500 mg p.o. q.i.d. for seven days or ceftriaxone 250 mg I.M. once can be effective. The other antibiotics will not be effective to eliminate the organism which is Haemophilus ducreyi. Acyclovir is effective against the herpes virus. Frenkl T, Potts J: Sexually transmitted diseases, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 13, pp 405-406.

2014 - 75
A 32-year-old man with a T5 spinal cord injury develops profuse sweating, hypertension, and bradycardia during urodynamic evaluation. The

bladder is emptied but his symptoms persist with a blood pressure of 170/100 mmHg. The next step is to administer:

A. oral nifedipine.
B. sublingual nifedipine.
C.
transdermal nitroglycerin, above the level of injury.

D. I.V. atropine.
E. I.V. hydralazine.

C
Autonomic dysreflexia (AD) is most commonly seen in patients with spinal cord injury levels above T8. It is an exaggerated sympathetic nervous system response to afferent visceral stimulation, manifest with sweating, headache, hypertension, reflex bradycardia, and flushing above the level of the spinal cord lesion. The normal BP in para and quadriplegics is low, usually 90-110 mmHg systolic. Elevation with autonomic dysreflexia symptoms classically begin with a 20 mmHg rise above baseline, well within normal range for a neurologic intact individual. If BP is > 120 mmHg and patient is symptomatic, presumed autonomic dysreflexia is present. Initial therapy should focus on the removal of inciting factors. In this case, that would include emptying of the bladder and removal of all urodynamic catheters. If the symptoms persist and systolic pressure remains elevated but lower than 150 mmHg, then evaluation for and treatment of fecal impaction, the second most common cause of AD after the bladder, is recommended. However, if the systolic pressure remains above 150 mmHg after bladder emptying and catheter removal, then use of a rapid-onset, short-acting antihypertensive is recommended while the cause of AD is investigated. Nitropaste 2%, applied .5-1 inch above the level of the lesion (vasoconstriction occurs below the level of the lesion and may interfere with the drugs absorption) is preferred due to its ability to be wiped free if rebound hypotension occurs. Alternatively, Nitroglycerin 0.4 mg sublingually, are the two first line drugs of choice in the outpatient setting. The physician must make sure the patient has not used a PDE-5 inhibitor for erectile dysfunction in the past 24 hours, due to concern for rebound hypotension. If a sildenafil agent has been used within 24 hours, Captopril 25 mg chewed or given sublingually becomes the drug of choice. Nifedipine used to be recommended as primary treatment or prophylactic agent for AD, however, because of several adverse, rebound hypotensive crisis resulting in stroke or MI after its use, the Joint commission for treatment of High Blood Pressure and National Spinal Cord Injury committees have discouraged its use and it has been banned for treatment or prevention of autonomic dysreflexia in some hospitals. If the blood pressure remains elevated and does not respond to oral therapy I.V., hydralazine is an option, however, BP may be quite labile after its use with both hypotension and/or rebound hypertension, the patient will require hospital admission with further monitoring. In the outpatient setting, when autonomic dysreflexia is triggered and successfully treated, it is recommended that the patient should be monitored for resumption of hypertension for a minimum of two hours. If AD recurs, hospitalization with monitoring for 24 hours is recommended, if not,

the patient can be discharged from the outpatient setting. Recommendations to prevent autonomic dysreflexia preceding cystoscopy or urodynamic evaluations are to use: terazosin 5 mg, prazosin 1 mg, or tamsulosin 0.8 mg the night before the exam, or alternatively at the time of the exam place Nitropaste 2% .5 inch (if not on sildenafil) or Captopril 25 mg sublingually 10-15 minutes prior to exam. Gunduz H, Binak DF: Autonomic dysreflexia: An important cardiovascular complication in spinal cord injury patients. CARD J 2012;19:215-219. Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1926.

2014 - 76

A 70-year-old obese man has difficulty walking one day following robotic cystectomy and pelvic lymphadenectomy. On examination, his extremities appear normal with slight decreased sensation of the anteromedial thigh and weakness bilaterally with hip flexion. The most likely cause for his symptoms is injury to which nerve:

A. obturator.
B. femoral.
C. lateral femoral cutaneous.
D. sciatic.
E. genitofemoral.

B
The patientÆs motor and sensory deficits are classic presentations for femoral neurapraxia, thought to be due to entrapment by the inguinal ligament in patients whose hips are hyperextended during positioning for robotic pelvic procedures. The femoral nerve has both sensory (anteromedial thigh) and motor components essential for hip flexion. The obturator nerve governs adduction of the thigh (motor) and sensation to medial aspect of thigh (sensory). The lateral femoral cutaneous nerve is purely a sensory nerve innervating the lateral thigh. The sciatic nerve has sensory (posterior calf) and motor (posterior thigh muscle groups) branches. The genitofemoral nerve supplies sensation to the scrotal skin and cremaster muscle (motor). Koc G, Tazeh NN, Joudi FN, et al: Lower extremity neuropathies after robot-assisted laparoscopic prostatectomy on a split-leg table. J ENDOUROL 2012;26:1026-1029.

2014 - 77 A 55-year-old man has a 16 Fr urethral catheter that cannot be removed because the balloon will not deflate. The best way to deflate it is to:

A. inject ether into the inflation port.
B. pass a guidewire down the inflation port.
C. puncture the balloon percutaneously with ultrasound guidance.
D. inject water into the inflation port until the balloon bursts.

E. pass a resectoscope sheath over the cut-off catheter to guide cystoscopic scissors.

B
If a urethral catheter balloon will not deflate, the first step should be to attempt to place another 2-5 ml of fluid into the balloon and reattempt deflation of the balloon. If that fails, the inflation valve should be cut. This will allow access to the inflation channel. A guide or glidewire passed down the inflation channel will almost always clear the passage and let the water out without breaking the balloon. The other choices listed will result in breaking the balloon, often leaving a floating fragment that cannot be voided or irrigated out and can possibly lead to bladder stone formation. If rupture of the balloon is performed, cystoscopy is recommended to evaluate and retrieve any fragment left behind. Mendez CE, Razvi H, Denstedt JD: Fundamentals of instrumentation and urinary tract drainage, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 7, p 182.

2014 - 78
A 13-year-old boy with prune belly syndrome and chronic hydronephrosis is obtunded. He has a normal blood pressure and pulse, normal hematocrit, and appropriate urine output. Urinalysis is suspicious for UTI with gram negative rods on Gram stain. The lab value most likely to reveal the source of his obtundation is serum:

A. sodium.
B. magnesium.
C. bicarbonate.
D. ammonia.
E. lactate.

D
This scenario is concerning for UTI with an urea-splitting gram-negative organism in a urinary tract with significant urinary stasis. This can occur in prune belly syndrome children or any other patient with urinary stasis or obstruction. Urea in the urine is split into large amounts of ammonia which is absorbed systemically and may result in encephalopathy or even coma at high levels. Treatment is support, urinary drainage, and antibiotic administration. The vital signs, urine output, and normal hematocrit in the current patient argue for relative normovolemia and are not consistent with sepsis or other illness. Although perturbations of other electrolytes, bicarbonate, or lactate may occur, significant abnormality of one or more of these should lead to hemodynamic instability if severe enough to lead to an obtunded state. DeJonghe B: Urinary tract infection and coma. LANCET 2002;360:996. Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 116, p 3114.

2014 - 79 Elevation of the serum testosterone and LH levels associated with a normal FSH level is most frequently associated with:
A. puberty.
B. Klinefelter syndrome.
C. secondary testicular failure.
D. Sertoli-cell-only syndrome.
E. androgen resistance.

E
Androgen resistance or testicular feminization syndrome presents with a wide range of phenotypes of complete female external genitalia to men with normal genitalia and abnormalities of spermatogenesis. This X linked disorder is due to an abnormality of the androgen receptor. Testosterone production and secretion by the Leydig cells is normal, but the target organs including the pituitary gland do not recognize it due to faulty receptors. Therefore, LH secretion is increased because of the apparent lack of testosterone while FSH is unaffected since it is controlled by inhibin. Puberty would have normal testosterone, LH, and FSH. Klinefelter Syndrome and Sertoli Cell Only Syndrome would have elevated FSH, LH, and low testosterone. Secondary testicular failure can have a multitude of etiologies with the end result being low testosterone. The FSH and LH may be high or low. Diamond DA, Yu RN: Sexual differentiation: Normal and abnormal, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 133, p 3621.

2014 - 80
A 23-year-old man has a persistent 5 cm interaortocaval mass after three cycles of BEP for left NSGCT. Serum tumor markers are normal. During RPLND, the mass is densely adherent to the aorta and vena cava. An incisional biopsy of the mass reveals fibrosis. The next step is:

A. complete RPLND.
B. sample para-aortic and paracaval nodes.
C. completely resect residual mass.
D. terminate RPLND and follow tumor markers.
E. terminate RPLND and give XRT.

A
Following chemotherapy for retroperitoneal metastases from non-seminomatous germ cell tumors, teratoma will be found in approximately 40% of patients. When this is found, complete resection is mandatory for a number of reasons. Although the teratoma may be benign, continued growth of the tumor can lead to significant morbidity and the tumor can become unresectable. Additionally, complete retroperitoneal nodal evaluation will detect foci of residual cancer in up to 20% of patients. Thus, complete RPLND is necessary. Sheinfeld J, Bosl GJ: Surgery of testicular tumors, Wein AJ, Kavoussi LR,

Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 32, p 875.

2014 - 81 A 66-year-old woman is undergoing abdominal surgery for diverticulitis when the surgeon notices a solitary enlarged interaortocaval lymph node in the upper abdomen and removes it for biopsy. The biopsy reveals RCC. The most likely source of this disease is:
A. the left kidney.
B. the right kidney.
C. either kidney.
D. pelvic kidney.
E. horseshoe kidney.

B
The interaortocaval nodes primarily drain the right kidney. The left kidney drains to the interaortocaval nodes only in advanced disease. Anderson JK, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 1, p 3.

2014 - 82
Compared to placebo, monotherapy with Serenoa repens (saw palmetto) for men with bothersome LUTS due to BPH is likely to result in:

A. improved AUA symptom index.
B. improved maximal flow rate.
C. decreased prostate size.
D. lowered risk of acute urinary retention.
E. similar rate of adverse events.

E
The use of over-the-counter phytotherapy continues to be a popular therapy for the treatment of male LUTS due to BPH. However, there are a limited number of well done placebo-controlled trials evaluating its efficacy. The vast majority of these trials suggest that Serenoa repens is no more effective than placebo. No differences are seen in regards to AUA-SI or flow rates. There does not appear to be any decrease in prostate size or evidence that suggests that this drug is able to minimize the risk of progression to acute urinary retention. Initial prostate size does not appear to impact the outcome when Serenoa repens is used. Adverse events are mild and appear to be comparable to placebo. McNicholas TA, Kirby RS, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3,

chap 92, p 2651. MacDonald R, Tacklind JW, Rutks I, et al: Serenoa repens monotherapy for benign prostatic hyperplasia (BPH): An updated Cochrane systematic review. BJU INT 2012;109:1756. Barry MJ, Neleth S, Lee JY, et al: Effect of increasing doses of saw palmetto extract on lower urinary tract symptoms. JAMA 2011;306:1344-1351.

2014 - 83 A 55-year-old man has a transrectal biopsy which reveals small cell carcinoma. Metastatic workup is negative. The next step is:
A. radical prostatectomy.
B. LH-RH agonist.
C. cystoprostatectomy.
D. external beam radiation therapy (EBRT).
E. chemotherapy.

E
Small-cell carcinoma of the prostate carries a very poor prognosis. In most patients, the course is rapidly fatal. Most patients present with rapid onset of symptoms indistinguishable from other causes of bladder outlet obstruction. Systemic constitutional symptoms are reported in about 10% of cases. Chemotherapy in combination with surgery or radiation appears to be the most important component of management. Radiation is ineffective as is surgery alone, since most patients have metastatic disease. These tumors are generally not hormonally sensitive. Abbas F, Civantos F, Benedett P, et al: Small cell carcinoma of the bladder and prostate. J UROL 1995;46:30. Antonarakis ES, Carducci MA, Eisenberger MA: Treatment of castration-resistant prostate cancer, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 110, pp 2961-2962.

2014 - 84 A newborn girl has a febrile UTI. Her abdominal ultrasound reveals a left duplicated system with a large ureterocele and severe bilateral hydroureteronephrosis. Early intervention is required because of:
A. non-function of the upper pole segment.
B. reflux to the lower pole segment.
C. reflux to the contralateral kidney.
D. increased risk of incontinence.
E. bladder outlet obstruction.

E
Of all the potential complications of a large ureterocele, bladder outlet obstruction is the most worrisome because it affects both kidneys, leads to recurrent infection, and progressive renal damage. A key indicator of bladder outlet obstruction in this patient is the presence of contralateral hydroureteronephrosis. Non-function of the upper pole system does not require early intervention unless the patient presents with febrile UTI unresponsive to antibiotic therapy. Initial therapy for reflux either into the ipsilateral or contralateral kidney would be managed with continuous antibiotic prophylaxis as first line therapy. Incontinence occurs in a small percentage of children with ureteroceles,

usually due to a congenital defect in the bladder neck due to distortion from the ureterocele, and is best managed in the older child. Peters CA, Schlussel RN, Mendelsohn C: Ectopic ureter, ureterocele, and ureteral anomalies, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 121, pp 3240-3241.

2014 - 85

A 64-year-old man with erectile dysfunction and a history of coronary disease is taking tadalafil 5 mg daily. During sexual activity, he develops angina. The next step is:

A. stop sexual activity and rest.
B. stop sexual activity and seek emergency treatment.
C. take nitroglycerin only if it has been at least 24 hours since his last tadalafil dose.
D. take nitroglycerin only if it has been at least 48 hours since his last tadalafil dose.
E. take nitroglycerin only in a medically monitored setting.

B

Patients who are taking PDE5 inhibitors cannot concomitantly use nitrates due to the potential risk of severe hypotension. For the short acting PDE5 inhibitors (vardenafil, sildenafil, avanafil), medical personnel should not use nitrates for at least 24 hours and for 48 hours with the long acting PDE5 inhibitor, tadalafil. Men who have taken PDE5 inhibitors and develop angina during sexual activity (which has a greater risk of bringing on a non-fatal MI) should stop sexual activity and seek emergency medical therapy immediately. Burnett AL: Evaluation and management of erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 24, p 742. Montague DK, Jarow J, Broderick GA, et al: The management of erectile dysfunction: An update. ERECTILE DYSFUNCTION. American Urological Association Education and Research, Inc, 2005. http://www.auanet.org/education/guidelines/erectile-dysfunction.cfm

2014 - 86

A 42-year-old woman has crampy abdominal pain three months after undergoing a continent cutaneous urinary diversion. She is afebrile and has a WBC of 7,500/cu mm. Her abdomen is mildly distended, diffusely tender, and bowel sounds are present. KUB reveals nonspecific small and large bowel gas patterns. The next step is:

A. I.V. fluids and nasogastric suction.
B. exploratory laparotomy.
C. pouchogram.

D. CT urogram.
E. pouch catheterization.

E
Early after continent urinary diversion, many patients misinterpret distension of the pouch due to urine and mucus as diffuse abdominal pain. This patient's KUB, normal WBC, normal bowel sounds, and lack of fever do not suggest obstruction or leakage from the bowel reanastomosis or the urinary pouch. The first and simplest measure is to catheterize and drain the pouch to determine if the symptoms are relieved. Only if the pain persists are some or all of the other measures necessary to exclude other postoperative complications such as ileus, pouch leak or rupture, or urinary tract obstruction. Patient education on symptoms is paramount to prevent unnecessary interventions. McKiernan JM, DeCastro GJ, Benson MC: Cutaneous continent urinary diversion, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 86, p 2458.

2014 - 87
A 17-year-old girl with a history of an augmentation cystoplasty undergoes a pubo-vaginal sling procedure for persistent stress incontinence. On postoperative day three, she has left flank pain and increased drainage from the incision (creatinine of drainage is 9 mg/dl). CT scan reveals new onset of left hydroureteronephrosis and left perivesical fluid collection, and CT cystogram reveals no extravasation of contrast from bladder. The next step is:

A.
cystoscopy, retrograde pyelogram, and stent placement.

B. percutaneous nephrostomy.
C. removal of sling.
D. open ureteral repair and removal of sling.
E. ureteroneocystostomy.

A
Although ureteral injuries are uncommon during transvaginal suspension procedures, the ureter occasionally can be injured or obstructed by the surgical dissection or suspension suture. If recognized intraoperatively, the suspension suture should be removed and a ureteral stent placed. If this is recognized postoperatively, a retrograde pyelogram will define the extent of the injury and retrograde stent placement attempted. If stenting is not successful, antegrade stenting is advised. Open repair is advised when retrograde or antegrade ureteral stent placement cannot be performed. Ureteroneocystostomy is performed only when significant devitalization of the ureter occurs. Adams MC, Joseph DB: Urinary tract reconstruction in children, Wein AJ, Kavoussi LR, Novick AC, Partin

AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 129, pp 3465-3466. Ficazzola M, Nitti VW: Complications of incontinence procedures in women, Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT, ed 3. Philadelphia, Elsevier Saunders, 2001, chap 42, pp 489-491.

2014 - 88

A 61-year-old man develops complete erectile dysfunction following radical prostatectomy and has placement of a two-piece inflatable penile prosthesis. Three months after implantation, he complains of decreased penile size and inability to satisfy his partner. Examination demonstrates a functional prosthesis. The best treatment is:

A. referral to a sex therapist.
B. combination therapy with sildenafil.
C. combination therapy with intraurethral alprostadil.
D. upsize to a larger two-pieced inflatable prosthesis.
E. remove and implant a three-piece inflatable prosthesis.

A

Over 85% of patients and 70% of partners rate satisfaction following placement of penile prosthesis as very high

. That being said, there are still patients who have significant problems with establishing intimacy following the diagnosis and treatment of prostate cancer. There are also patients who note significant decrease in penile size following radical prostatectomy. In this patient with no problems noted with his implant, evaluation and treatment by a sex therapist would be the best treatment. Combination therapy with a PDE5 inhibitor or alprostadil can increase glanular engorgement but are not FDA-approved and would not necessarily help with partner issues. There is no need to change out the prosthesis for a different device if it has been properly sized and implanted. Montague DK: Prosthetic surgery for erectile dysfunction, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 27, p 791. Montague DK, Jarow J, Broderick GA, et al: The management of erectile dysfunction: An update. ERECTILE DYSFUNCTION GUIDELINE. American Urological Association Education and Research, Inc, 2005. http://www.auanet.org/education/guidelines/erectile-dysfunction.cfm

2014 - 89 A healthy 50-year-old man with gross hematuria has a peripherally located 4 cm solid mass in a solitary kidney. The serum creatinine is 1.2 mg/dl. CT scan demonstrates a 1 cm renal vein tumor thrombus. There is no evidence of metastasis. The next step is:
A. angiographic embolization.
B. laparoscopic cryoablation.

C. partial nephrectomy.
D. radical nephrectomy.
E. interleukin-2.

D
Under usual circumstances, a peripherally located tumor in a solitary kidney is best managed by partial nephrectomy, both for potential cure and to prevent the need for dialysis. However, the presence of a venous thrombus makes complete tumor excision less likely and is associated with a high likelihood of tumor recurrence and poor prognosis after partial nephrectomy. Given the patient's good health, long life expectancy, and episode of gross hematuria, observation is likely to result in further tumor progression, more bleeding or other local symptoms which may require intervention, and potentially metastatic disease. Laparoscopic cryoablation is best used for smaller tumors and will not control the tumor thrombus. Systemic immunotherapy rarely results in a response in the primary tumor and is unlikely to be curative. Thus, the best choice is radical nephrectomy which will result in the need for dialysis. A prolonged disease-free interval would make the patient eligible for subsequent renal transplantation. Selective angioinfarction of the tumor is another alternative which could be used for palliation of the bleeding, but will not be curative. Angermeier KW, Novick AC, Streem SB, et al: Nephron-sparing surgery for renal cell carcinoma with venous involvement. J UROL 1990;144:1352-1355. Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, p 1445.

2014 - 90
A 32-week-gestation neonate maintained in the neonatal ICU for respiratory difficulties, is found to have candiduria on two successive catheterized urine cultures. He is voiding spontaneously, and his renal and bladder ultrasound is normal. The most appropriate therapy is:

A. observation with repeat urine culture in one week.
B. circumcision.
C. intravesical amphotericin.
D. parenteral fluconazole.
E. parenteral amphotericin.

D
The incidence of Candidal nosocomia UTIs occurring within neonatal intensive care units is increasing and directly related to the use of parenteral antibiotics. In this select patient population, aggressive treatment of asymptomatic candiduria is required due to a high incidence of subsequent candidemia. Indeed, in some published series, failure to treat asymptomatic candiduria in premature neonates resulted in systemic candidemia in up to 80% of patients. Isolating treatment to the bladder with topical irrigation will not effectively treat the risk of candidemia and parenteral treatment is required. Fluconazole is the treatment of choice in a premature infant when compared to amphotericin because

of significantly diminished systemic side effects. Circumcision will not decrease the risk of candidemia. Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 116, p 3119.

2014 - 91 T cell activation requires T cell receptor engagement of antigen presented by major histocompatibility complex (MHC) molecule on the surface of antigen presenting cells (APCs) and:
A. intracellular signal transduction.
B. cell division and proliferation.
C. direct cell-cell interaction with B cells.
D. APC glycoprotein and T cell ligand interaction.
E. interferon-gamma stimulation.

D
T cell activation requires three signals. First, T cell receptor engages specific antigens presented by MHC molecules on APCs. Without the second signal, the T cell remains functionally inactive. Second, stabilization and costimulation between APC glycoproteins (e.g., CD 40 and CD 80) with their T cell ligands are required. Lastly, cytokine (especially interleukins) stimulation is necessary to complete T cell activation. Although intracellular signal transduction and cell proliferation are integral parts of T cell activation, these steps are not possible without T cell costimulation. Flechner SM, Finke JH, Fairchild RL: Basic principles of immunology in urology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chapter 17, p 503.

2014 - 92
A 31-year-old woman had an ileal conduit urinary diversion at age ten years for a neurogenic bladder. She is now ten weeks pregnant. In addition to appropriate obstetrical care, she should have:

A. amniocentesis.
B. a Cesarean section at term.
C. no additional urologic treatment.
D. prophylactic antibiotics.
E. serial renal ultrasounds.

C
An ileal conduit is not a contraindication to having a successful, normal pregnancy. Unless a specific indication exists, the routine obstetrical care of a pregnant woman with an ileal conduit is the same as that for a woman with no previous urinary tract surgery. Antibiotics are only required if the patient experiences a symptomatic urinary tract infection. There is no required need for Cesarean section and amniocentesis should be

reserved for fetal indications. Serial renal ultrasounds would likely show progressive physiologic hydroureteronephrosis of pregnancy, and are not indicated in asymptomatic patients. Loughlin KR: Management of urologic problems during pregnancy. J UROL 1994;44:159. Adams MC, Joseph DB: Urinary tract reconstruction in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 129, pp 3485-3486.

2014 - 93

Diagnostic laparoscopy is performed on a one-year-old boy with a nonpalpable left testicle. The testis is found 3 cm above the internal ring, with a long looping vas deferens and short spermatic vessels. The procedure most likely to result in successful orchiopexy is:

A. laparoscopic orchiopexy with intact spermatic vessels.
B. laparoscopic single stage Fowler-Stephens orchiopexy.
C. clip spermatic vessels and return in six months.
D. open transabdominal orchiopexy.
E.
remove laparoscope, administer intramuscular hCG for four weeks, then re-explore.

C

When the testis is more than 2 cm above the internal ring with no vascular redundancy, it is unlikely that the testis will be able to reach the scrotum without dividing the spermatic vessels. In this situation, staged Fowler-Stephens procedure with division of the gonadal vessels at the first stage has a significantly higher success rate than primary Fowler-Stephens procedure. With the high abdominal position of the testis and short spermatic vessels, the testis is unlikely to reach the scrotum with either a laparoscopic or open transabdominal orchiopexy, which would both be limited by the ability to adequately mobilize the vessels. Although hCG has been used to increase testicular vascularity, there are no documented studies to prove that administration of hCG pre-Fowler Stephen orchiopexy improves testicular viability. Indeed, there is concern that acute hCG stimulation could cause damage to the seminiferous tubules. Barthold JS: Abnormalities of the testes and scrotum and their surgical management, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 132, pp 3570-3572. Leon MD, Chiazzi VA, Calvo JC, et al: Acute hCG administration induces seminiferous tubule damage in the adult rat. ACTA PHYSIOL PHARM LATINOAM 1987;37:277-288. Hjertkvist M, Bergh A, Damber JE: hCG treatment increases intratesticular pressure in the abdominal testis of unilaterally cryptorchid rats. J ANDROL 1988;9:116-120.

2014 - 94

At twelve months, results of the Trial of Mid-Urethral Slings (TOMUS)

showed that retropubic slings compared to transobturator slings have:

A. superior efficacy and greater risk of post-operative voiding dysfunction.
B. superior efficacy and lesser risk of post-operative voiding dysfunction.
C. inferior efficacy and greater risk of post-operative voiding dysfunction.
D. inferior efficacy and lesser risk of post-operative voiding dysfunction.
E. equivalent efficacy and greater risk of post-operative voiding dysfunction.

E
The TOMUS (Trial of Mid-Urethral Slings) study is a multicenter, randomized equivalence trial sponsored by the Urinary Incontinence Treatment Network (UITN) which evaluated 597 women with SUI who were assigned to undergo treatment either with a retropubic or transobturator midurethral sling. At 12 months, the patients in both groups met the prespecified criteria for equivalence with regard to the objective definition of success (negative stress test, negative pad test, and no retreatment) with 80.8% in the retropubic group and 77.7% in the transobturator group having a successful outcome. Subjective definition of success was defined as a self-reported absence of symptoms, no leakage episodes recorded on diary, and no retreatment. Subjectively, the outcomes between the two groups were similar; 62.2% in the retropubic group and 55.8% in the transobturator. Rates of postoperative voiding dysfunction were higher (2.7%) in the retropubic group compared to the transobturator group (0%). Richter HE, Albo ME, Zyczynski HM, et al: Retropubic versus transobturator midurethral slings for stress incontinence. NEJM 2010;362:2066-2076.

2014 - 95
Left inguinal orchiectomy is performed on a 24-year-old man for an embryonal cell carcinoma. AFP is elevated but beta-hCG is normal. On chest x-ray, there is a 5 cm mass in the right lung and an abdominal CT scan shows a 2 cm periaortic adenopathy. After four cycles of platinum-based chemotherapy, AFP has returned to normal, and an abdominal CT scan shows resolution of the retroperitoneal adenopathy. On chest x-ray, the lung mass is still present but has decreased to 3 cm in size. The next step is:

A. retroperitoneal node dissection.
B. salvage chemotherapy with ifosfamide.
C. continue platinum chemotherapy for two more cycles.
D. needle biopsy of the lung mass.
E. pulmonary wedge resection.

E
Further chemotherapy is not indicated without histologic evidence of residual disease. Although assessment of the retroperitoneal nodes must be considered, removal of the

lung mass by thoracotomy is indicated first. Needle biopsy would be an insufficient sampling method and if this is teratoma, excision of the lung mass would be therapeutic. Bosl GS, Motzer RJ: Testicular germ cell cancer. NEJM 1997;337:242-253.

2014 - 96

A six-year-old boy with a history of imperforate anus has persistent diurnal urinary incontinence. Evaluation includes an MRI scan showing the conus medullaris at the L-2 level. Urodynamics show no postvoid residual, a flat filling curve with high volume detrusor overactivity, and normal voiding pressures. These findings suggest:

A. tethering of the spinal cord.
B. vesico-colonic fistula.
C. detrusor-sphincteric dyssynergia.
D. no significant uropathology.
E. intrinsic sphincteric deficiency.

D
Imperforate anus is accompanied by a high incidence of bony sacral and neurological anomalies that may lead to a neurogenic bladder. On the other hand, diurnal and nocturnal enuresis are common in six year olds. This boy can completely empty the bladder volitionally; i.e., no postvoid residual. There is no evidence of spinal cord tethering with the conus medullaris in the normal position upper border of L-2. A vesico-colonic fistula would be unlikely. The urodynamic study is not suggestive of detrusor-sphincter dyssynergia, and the detrusor overactivity at high volume is unlikely to suggest any serious underlying pathology. MacLellan DL, Bauer SB: Neuropathic dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 128, pp 3450-3452.

2014 - 97

A 65-year-old man complains of residual LUTS after prior TUNA. His symptoms are unchanged after the initiation of tamsulosin. He has a 30 gram benign prostate and cystoscopy reveals median lobe enlargement. The pressure-flow urodynamic study reveals no evidence of detrusor overactivity, with an end fill detrusor pressure of 3 cm H2O at a maximum capacity of 450 ml. He voids with a synergistic curve pattern with detrusor pressure at the time of peak flow of 120 cm H2O. Peak flow is 8 ml/sec, average is 4 ml/sec, and total volume voided is 400 ml PVR of 50 ml. The next step is:

A. dutasteride.
B. solifenacin.

C. onabotulinumtoxinA injection into the detrusor.
D. TUIP.
E. TURP.

E
The urodynamics are consistent with bladder outlet obstruction. The patient has normal bladder compliance, no evidence of detrusor overactivity, and during the pressure-flow study, elevated detrusor pressures with a low flow. Therefore, treatments aimed at overactive bladder (solifenacin and onabotulintumtoxinA) would not be indicated. This patient does not have a large prostate on exam; thus, dutasteride is not indicated. A TUIP would not be appropriate in light of the enlarged median lobe; therefore, TURP would be the appropriate therapy for this patientÆs LUTS. Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 93, p 2679.

2014 - 98 Deletions of the short arm of chromosome 3 occur most frequently in association with:
A. papillary RCC.
B. angiomyolipoma.
C. renal medullary carcinoma.
D. oncocytoma.
E. clear cell RCC.

E
Deletions of the short arm of chromosome 3 are characteristic of clear cell (conventional type) RCCs, which are seen in sporadic cases of renal cell carcinoma and those associated with von Hippel-Lindau disease. The short arm of chromosome 3 is the location of the VHL gene. Type 1 papillary renal cancers are associated with mutations of the c-met proto-oncogene located on chromosome 7. Type II papillary renal cancers are associated with mutations of the fumarate hydratase gene located on chromosome 1. Oncocytoma can be seen in mutations of the BHD1 gene located on the short arm of chromosome 17. Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, p 1425.

2014 - 99 The epithelial lining of the distal periurethral prostatic ducts is:
A. stratified.
B. pseudostratified.
C. squamous.
D. transitional (urothelial).
E. cuboidal.

D
The distal prostatic ducts are lined by transitional (urothelial) epithelium as in the prostatic urethra. Primary urothelial carcinoma of the prostate arising from these glands account for 1.5-4% of all male urethral cancers. Chung BI, Sommer G, Brooks JD: Anatomy of the lower urinary tract and male genitalia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 2, p 56.

2014 - 100 A 66-year-old man with a history of a CVA five years ago complains of bothersome lower urinary tract symptoms. No improvement was noted after a trial of oxybutynin. A pressure flow urodynamic study reveals no evidence of detrusor overactivity and end fill detrusor pressure of 3 cm H2O at a maximum bladder capacity of 325 ml. He voids with a detrusor pressure of 95 cm after a trial of oxybutynin. A pressure flow urodynamic study reveals no evidence of detrusor overactivity and an end fill detrusor pressure of 3 cm H2O at a peak uroflow of 3 ml/sec and an average of 2 ml/sec. His total volume voided is 200 ml and his PVR is 125 ml. The next step is:
A. mirabegron.
B. tamsulosin.
C. sacral nerve stimulation.
D. posterior tibial nerve stimulation.
E. onabotulinumtoxinA.

B
If voiding dysfunction persists after stroke, the most common findings include detrusor overactivity, intact sensation, and a synergistic sphincter. However, it is also important to note that non-neurogenic voiding dysfunction may occur as well, especially in this patient population which is often older. The urodynamic findings in this patient are consistent with bladder outlet obstruction so tamsulosin should be started. There is no urodynamic evidence of detrusor overactivity, so therapies directed at that such as mirabegron (beta-3 agonist), SNS, PTNS, and onabotulinumtoxinA would not be the next appropriate step. Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1913.

2014 - 101 A 33-year-old man with infertility has azoospermia. He has normal testes bilaterally and a serum FSH of 7 IU/l. Bilateral testis biopsies reveal maturation arrest and bilateral intratubular germ cell neoplasia. The next step is:
A. serial ultrasound and tumor markers.
B. repeat biopsy in six months.
C. bilateral inguinal orchiectomy.

D. XRT to both testes.
E. systemic chemotherapy.

D
Due to the high association of subsequent development of overt carcinoma, testicular intratubular germ cell neoplasia may be treated by orchiectomy, radiation therapy, or chemotherapy. Radiation therapy is effective and may maintain Leydig cell function. In cases of bilateral disease, bilateral orchiectomy would be a drastic recommendation. Given the potential toxicities of chemotherapy compared to radiation, this approach would be reserved for contralateral CIS in the setting of metastasis from the primary tumor. Prior to treatment, testicular sperm extraction should be considered as some men with maturation arrest on diagnostic biopsy will have sperm found with a more extensive biopsy. Stephenson AJ, Gilligan TD: Neoplasms of the testis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 31, pp 850-851.

2014 - 102

A five-year-old boy has day and night wetting, constipation, and fecal soiling. Physical examination is normal except for a high-arched right foot. Urodynamics show detrusor overactivity and normal sphincter function. The next step is:

A. CIC.
B. timed voiding schedule.
C. spinal MRI scan.
D. antimuscarinics.
E. bowel program.

C
The patient has the urologic finding of incontinence combined with fecal soiling and a foot abnormality. A tethered cord due to occult spinal dysraphism needs to be ruled-out as the cause of his incontinence. Tethered cord syndrome is a stretch-induced functional disorder of the spinal cord with the most caudal part of the cord anchored by inelastic structures. Specific treatment of his bladder instability (timed voids, medication, catheterization, treatment of constipation) is appropriate after a neurologic cause is excluded. Wein AJ, Dmochowski RR: Neuromuscular dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 65, p 1909.

2014 - 103

A 45-year-old man has two days of perineal discomfort, dysuria, and urinary frequency. Urinalysis reveals bacteruria and pyuria. Physical examination reveals an enlarged prostate. He has a history of four

symptomatic E. coli UTIs over the past year. He finished his last course of antibiotics one week ago. Before antibiotic treatment is restarted, which culture should be obtained:

A. midstream urine.
B. urine by suprapubic aspiration.
C. expressed prostatic fluid.
D. pre- and post-prostatic massage voided urine and prostatic fluid.
E. initial voided urine.

A
This man likely has chronic bacterial prostatitis, which is usually manifested by recurrent UTIs with the same organism. While lower urinary tract bacterial localization is helpful in identifying the prostate as a nidus of infection, localization is useless in the presence of bacteruria, with all isolation specimens having bacterial growth due to contamination. This man is currently symptomatic with documented bacteruria and should not, therefore, undergo localization testing. In this situation, preferred treatment is to obtain a midstream urine culture and treat preferably with nitrofurantoin. Nitrofurantoin will clear the urine of bacteriuria and have little to no effect on intraprostatic bacteria. Once the urine has been documented to be sterile, usually in three to five days, bacterial localization studies with initial voided, mid-stream, expressed prostatic secretions and post-prostatic massage urinary specimens should be obtained. These tests will allow confirmation of chronic bacterial prostatitis. For chronic prostatitis caused by E. coli, four to six week treatment with the fluoroquinolones is superior to the alternative three month therapy with trimethoprim-sulfamethoxazole. Approximately 20% of the patients will fail the initial therapy and a rescue treatment with a second cycle of therapy with an alternative quinolone has been found to rescue the majority of the relapsing patients. Nickel JC: Prostatitis and Related Conditions, Orchitis, and Epididymitis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 10. Philadelphia, Saunders Elsevier, 2012, vol 1, chap 11, pp 333-338.

2014 - 104 A 36-year-old obese paraplegic man undergoes evaluation for an ileal conduit diversion. The preferred site for urostomy placement is:
A. right upper quadrant lateral to rectus.
B. right upper quadrant through rectus.
C. right lower quadrant through rectus.
D. right lower quadrant lateral to rectus.
E. at umbilicus.

B
Careful selection of the optimal site for a stoma is a critically important part of the preoperative evaluation of the patient. The stomal site should avoid the umbilicus, bony prominences, scars, and folds. It should be placed in a region where the flat abdominal skin measures 5-7 cm in both directions. The stoma for an ileal conduit is usually located

in the right lower quadrant. Paraplegics, often with abdominal prolapse and wheel-chair existence pose a special problem for stomal site selection. A right lower quadrant site often results in a stoma that is difficult for the patient to see, with the stoma and appliance squeezed between the abdomen and thigh. For this reason, in the paraplegic patient, the stoma should always, if possible, be placed in the upper abdomen. In addition, in all patients the stoma should be brought through the rectus muscle to minimize the risk of peristomal herniation. All patients should see an enterostomal therapist prior to stomal placement. Mattos RM, Libertino JA: Complications associated with urinary diversion, continent reservoirs, and neobladders, Libertino JA (ed): RECONSTRUCTIVE UROLOGIC SURGERY, ed 3. St. Louis, Mosby-Year Book Inc, 1998, chap 43, pp 423-432. Kanofsky JA, Godoy G, Taneja SS: Complications of conduit urinary diversion, Taneja SS (ed): COMPLICATIONS OF UROLOGIC SURGERY, ed 4. Philadelphia, Elsevier Saunders, 2010, chap 46, p 536.

2014 - 105 The most effective intervention to prevent the formation of bladder calculi in children after augmentation cystoplasty is:
A. oral potassium citrate.
B. prophylactic antibiotics.
C. urinary acidification.
D. oral thiazide.
E. regular bladder irrigation.

E
Bladder calculi develop in 18-30% of children following augmentation cystoplasty. Various factors may contribute to stone formation, e.g., bacteriuria, urinary stasis, hypocitraturia, mucus, etc. The most effective preventive measure for bladder stone formation is regular irrigation to clear the mucus that may serve as a nidus. No studies have demonstrated efficacy of bladder stone prevention using oral potassium citrate, prophylactic antibiotics, urinary acidification, and thiazide. Adams MC, Joseph DB: Urinary tract reconstruction in children, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 129, pp 3483-3484.

2014 - 106
During robotic cystectomy, the assistant places an extra-long 8 mm metal robotic trocar within a previously placed standard 12 mm plastic trocar to facilitate use of an additional robotic arm for dissection. The use of monopolar scissors within this hybrid trocar creates a higher risk of:

A. trocar dislodgement.
B. trocar site pain.
C. incisional hernia.
D. thermal injury to bowel.
E. vascular injury.

D
When a metal trocar is placed directly through the skin, the charge surrounding an activated monopolar instrument is conducted back through the metal trocar and dispersed by the abdominal wall. However, placing a metal trocar within a plastic sheath may result in insulation of an electric field from the abdominal wall. The resultant buildup of the electrical field of an activated electrosurgical instrument can then conduct to the exposed metal trocar extending beyond the plastic sheath inside the abdomen resulting in direct conduction to nearby organs such as the bowel. This condition is called capacitance coupling and is one potential cause of electrosurgical injury to the bowel or other internal organs during laparoscopy. As the 8 mm metal trocar is placed within the 12 mm plastic trocar, this would not increase the risk of incisional hernia or trocar site discomfort. As the robotic instrument pivots within a trocar about a fixed remote center point, this avoids any excess inward-outward motion of the trocar thus reducing any risk of trocar dislodgement. Lastly, this unique hybrid trocar arrangement would not itself increase the risk of vascular injury. Eichel L, Clayman RV: Basics of laparoscopic urologic surgery, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 9, pp 242-244.

2014 - 107 The most sensitive biochemical test for confirming the diagnosis of pheochromocytoma is:

A. plasma free metanephrines.

B. plasma catecholamines.

C. urinary metanephrines.

D. urinary vanillylmandelic acid.

E. urinary catecholamines.

A
A number of biochemical tests are available to exclude or confirm the diagnosis of pheochromocytoma. Plasma-free metanephrine testing is the most sensitive test (99%). Because this conversion of catecholamines to metanephrines is an uninterrupted process within pheochromocytomas, the measurement of plasma concentration of metanephrines is a much more sensitive means of tumor detection than the measurement of rises in plasma catecholamines, which may be paroxysmal. Other clinical tests with lower sensitivities include urinary fractionated metanephrines, plasma catecholamines, urinary catecholamines, urinary total metanephrines, and urinary vanillymandelic acid. Kutikov A, Crispen PL, Uzzo RG: Pathophysiology, evaluation, and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 57, pp 1703-1711. Lenders JWM, Pacak K, Walther MM, et al: Biochemical diagnosis of pheochromocytoma: Which test is best? JAMA 2002;287:1427-1434.

2014 - 108 A 12-year-old girl with myelodysplasia underwent placement of an artificial urinary sphincter and bilateral ureteral reimplantation six months ago. She has new bilateral hydroureteronephrosis and her serum creatinine has increased from 0.8 to 1.4 mg/dl. The likely explanation is:

A. persistent VUR.
B. chronic ureteral atony due to infection.
C. surgical obstruction of the distal ureters.
D. loss of bladder compliance.
E. sphincter malfunction.

D
New onset hydroureteronephrosis found after sphincter/sling placement in patients with a neurogenic bladder may be caused by bladder decompensation (detrusor noncompliance) that was not identified on pre-operative urodynamic studies. Provocative urodynamic studies (occlusion of the bladder outlet while filling), although once recommended to be performed prior to sphincter or sling placement has not been found to be highly accurate in determining the bladders ability to develop or lose compliance following an increase in outlet resistance, and is therefore of equivocal value. Persistent VUR and ureteral atony would not explain rapid decrease in renal function. Surgical obstruction of the ureters due to the sphincter placement would be seen in an acute setting. Six months following reimplantation, obstruction due to ureteral scarring would be unusual and would not be the most likely reason for the increased dilation seen in the upper tracts. Sphincter malfunction would result in incontinence. The most likely source of new onset hydronephrosis in this setting is either the development of detrusor noncompliance, or patient non-compliance with CIC and timed voiding intervals. Complete urodynamic evaluation and maintenance of a voiding-catheterization calendar will help delineate between the two possibilities. MacLellan DL, Bauer SB: Neuropathic dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 128, pp 3467-3469.

2014 - 109
Three months after starting abiraterone for metastatic castrate-resistant prostate cancer, a 75-year-old man is responding to the therapy but develops worsening hypertension, hypokalemia, edema, and fatigue. The next step is:

A. discontinue abiraterone.
B. start spironolactone.
C. start fludrocortisone.
D. start prednisone.
E. start docetaxel.

D
Abiraterone irreversibly inhibits the products of the CYP17 gene including both 17,20-lyase and 17-alpha-hydroylase, resulting in a comprehensive block of androgen synthesis within the tumor, testes, and adrenal glands. As a result of inhibition of 17-alpha-hydroxylase, there is a decrease in cortisol synthesis with compensatory rise in ACTH,

resulting in increased adrenal mineralocorticoid production. This can lead to hypertension, hypokalemia, and fluid retention if concomitant glucocorticoids (such as prednisone) are not administered with abiraterone to attenuate these effects. Therefore, glucocorticoid should be given concurrently with abiraterone. Clinical adrenal insufficiency does not generally occur, likely due to mineralocorticoid precursors which have some glucocorticoid activity. Spironolactone may temporarily address the hypokalemia and hypertension respectively, but are not treating the source of the problem. Fludrocortisone is a mineralocorticoid and would not be advisable as the patient is already suffering from mineralocorticoid excess. There is no need to discontinue abiraterone as the patient is responding to the therapy from a cancer perspective. Docetaxel chemotherapy would be reserved for failure of abiraterone therapy, which there are no signs of in this case. Kutikov A, Crispen PL and Uzzo RG: Pathophysiology, evaluation and medical management of adrenal disorders, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Saunders Elsevier, 2012, vol 2, chapter 573, pp 1711-1714. Sonpavde G, Attard G, Bellmunt J, et al: The role of abiraterone acetate in the management of prostate cancer: A critical analysis of the literature. EUR UROL 2011;60:270-278.

2014 - 110

A 67-year-old man with a history of six weekly BCG treatments undergoes four cycles of M-VAC for a muscle invasive urothelial cell carcinoma (T3bNXMO) at the bladder neck. Following chemotherapy, there is no visible tumor although the urine cytology is positive. The next step is:

A. cystoscopy in three months.
B. repeat six weeks of BCG.
C. maintenance BCG.
D. XRT.
E. radical cystoprostatectomy.

E
Among patients with invasive bladder cancer, M-VAC chemotherapy will result in a complete pathologic response in 20% of patients prior to cystectomy. However, between 20-30% of patients with a clinical response will harbor residual invasive disease at the time of cystectomy. Accordingly, following chemotherapy this patient should undergo a cystoprostatectomy. There is no role for additional intravesical therapy in this patient. In addition, it would be inappropriate to place him on a surveillance protocol. HB Grossman, RB Natale, CM Tangen, et al: Neoadjuvant chemotherapy plus cystectomy compared with cystectomy alone for locally advanced bladder cancer. NEJM 2003;349:859-866. Lerner SP, Sternberg CN: Management of metastatic and invasive bladder cancer, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 82, p 2361.

2014 - 111 The acidosis of chronic renal failure may be distinguished from acute acidosis by:
A. increased anion gap.
B. decreased plasma HCO2.
C. increased pCO2 and HCO2.
D. decreased pCO2.
E. decreased pH.

D
The body has three primary mechanisms to handle physiologic and pathophysiologic acid loads including buffers within the blood, CO2 excretion in the lungs, and intracellular pH. Chronic acidosis is characterized by respiratory compensation of the underlying metabolic process. This leads to an increased respiratory clearance of CO2 and a decreased pCO2 over time. The pH is not as low as in the acute condition, and plasma bicarbonate is less depressed due to the compensation. Compensation includes HCO2 reabsorption within the proximal convoluted tubule and increased hydrogen ion secretion. The anion gap is often normal in the acidosis of chronic renal failure. Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, p 1042.

2014 - 112 A 19-year-old man complains that his partner has noticed significant left lateral deviation of his penis on erection. He denies any penile trauma and has not previously noticed the curvature. The most likely diagnosis is:
A. Peyronie's disease.
B. subacute penile fracture.
C. acquired penile curvature.
D. congenital penile curvature.
E. hypospadias with chordee.

D
This patient has congenital penile curvature which is often noticed in the postpubescent time period when the man becomes sexually active. Patients with congenital curvature of the penis can have ventral, lateral (most often to the left), or unusually, dorsal curvature. Photographs of the erect penis demonstrate a smooth curvature of the penile shaft. Patients usually are healthy young men classically presenting between the ages of 18 and 30 years old. Many of these patients have noticed curvature before passing through puberty but have presumed it to be normal. Evaluation is sought by the patient only when the abnormal curvature is brought to their attention from their sexual partner. There is usually no association with penile trauma which may lead to curvature from acute or subacute penile fracture and can cause acquired penile curvature. Peyronie's disease generally occurs in older men and is associated with pain on erection and gradual change in the degree of curvature. Another name for congenital penile curvature is chordee

without hypospadias. Surgical repair, when necessary, is usually performed using a plication technique. Jordan GH, McCammon KA: Surgery of the penis and urethra, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 36, p 992.

2014 - 113

A repeat prostate biopsy after an initial finding of atypical small acinar proliferation (ASAP), as compared to high-grade prostatic intraepithelial neoplasia (HGPIN), has:

A. a significantly higher risk of prostate cancer.
B. a significantly higher risk of high-grade prostate cancer only.
C. an equivalent risk of prostate cancer.
D. a significantly lower risk of prostate cancer.
E. a significantly lower risk of high-grade prostate cancer only.

A

With regards to prostatic intraepithelial neoplasia (PIN): 1) Low-grade PIN should not be documented in pathology reports due to poor interobserver reproducibility and a relatively low risk of cancer following re-biopsy, 2) The expected incidence of HGPIN on needle biopsy is between 5-8%, 3) Although the diagnosis of HGPIN is subjective, interobserver reproducibility for its diagnosis is fairly high among urological pathologists, 4) The median risk recorded in the literature for finding of cancer sometime in the patient's life following the diagnosis of HGPIN on needle biopsy is approximately 24%, 5) The majority of publications that compared the risk of cancer following a needle biopsy diagnosis of HGPIN to the risk of cancer following a benign diagnosis on needle biopsy show no differences between the two groups, 6) Clinical and pathological parameters do not help stratify which men with HGPIN are at increased risk for a future diagnosis of prostate cancer, 7) A major factor contributing to the decreased incidence of cancer following a diagnosis of HGPIN on needle biopsy in the contemporary era is related to increased needle biopsy core sampling, which detects many associated cancers on initial biopsy, such that re-biopsy following HGPIN, even with good sampling, does not detect many additional cancers, 8) It is recommended that men do not need routine repeat needle biopsy within the first year following the diagnosis of HGPIN. Further studies are needed to confirm whether routine repeat biopsies should be performed several years following a HGPIN diagnosis. In contrast, atypical small acinar proliferation (ASAP) is a small foci of glands that exhibit some features of adenocarcinoma, it is believed this diagnosis is frequently due to insufficient biopsy material to make the diagnosis of prostate cancer and therefore repeat biopsy is recommended. Regarding ASAP: 1) An average of 5% of needle biopsy pathology reports are diagnosed as having ASAP, 2) Cases diagnosed as ASAP have the highest likelihood of being changed to prostate cancer upon expert review and urologists should consider sending such cases for consultation in an attempt to resolve the diagnosis as definitively benign or malignant before subjecting the patient to repeat biopsy, 3) Ancillary pathologic techniques using basal cell markers and AMACR (alpha-methyl-

acyl-coenzyme A racemase) can decrease the number of ASAP diagnoses. 4) The average risk of cancer on a subsequent biopsy following a diagnosis of ASAP within a six month time period is approximately 40%, 5) Clinical and pathological parameters do not help predict which men with an atypical diagnosis have cancer on repeat biopsy, 6) Repeat biopsy should include increased sampling of the initial atypical site, and adjacent ipsilateral and contralateral sites with routine sampling of all sextant sites. Therefore, it is critical for urologists to submit needle biopsy specimens in a manner in which the sextant location of each core can be determined, 7) All men with an ASAP diagnosis need re-biopsy within three to six months. It is critical for urologists to distinguish between a diagnosis of HGPIN and that of ASAP on needle biopsy. These two entities indicate different risks of carcinoma on re-biopsy and different recommendations for followup. Epstein JI, Herawi M: Prostate needle biopsies containing prostatic intraepithelial neoplasia or atypical foci suspicious for carcinoma: Implications for patient care. J UROL 2006;175:820-834.

2014 - 114

A 56-year-old man has a prolonged ileus requiring nasogastric suction following radical cystectomy and ileal conduit. On the tenth postoperative day, he has a seizure. The most likely cause of the seizure is decreased serum:

A. calcium.
B. magnesium.
C. potassium.
D. phosphate.
E. sodium.

B

Magnesium depletion occurs with diuretic use, diabetic ketoacidosis, alcoholism, and prolonged nasogastric suction. The latter is associated with hyperchloremic metabolic acidosis. For reasons that are not clear, this eventually results in hypocalcemia and hypomagnesemia. When hypokalemia is associated with hypomagnesemia, potassium replacement cannot be accomplished until magnesium is replenished. Hypomagnesemia is one of the chief causes of inability to replenish body stores of potassium associated with prolonged nasogastric suction. If not corrected, hypomagnesemia will lead to an alteration in mental status and seizures. Shoskes DA, McMahon AW: Renal physiology and pathophysiology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 38, p 1025.

2014 - 115 A recurrent stone former has low urinary citrate. The patient inquires which soda he can drink. He should be advised to drink:
A. Caffeine Free Diet PepsiTM.
B. Diet Coke with LimeTM.

C. Sprite ZeroTM.
D. Coke ZeroTM.
E. no soda.

C
Several sodas are acidified by citric acid and contain an amount of citrate equal to or greater than that of lemonade, including Diet Sunkist Orange, Diet 7Up, Sprite Zero, Diet Canada Dry Ginger Ale, Sierra Mist Free, Diet Orange Crush, Fresca, and Diet Mountain Dew. All of the aforementioned sodas have the potential to decrease the risk of kidney stones similar to or greater than lemonade. In contrast, colas, including Caffeine Free Diet Coke, Diet Coke, Diet Coke with Lime, Coke Zero, Caffeine Free Diet Pepsi and Pepsi, are acidified by phosphoric acid, not by citric acid and contain low citrate levels. One randomized study of recurrent stone formers with baseline soda consumption > 160 ml per day, found that over a three-year period those who abstained from any soft drink consumption had a lower risk of symptomatic stone events (34%) compared to those who continued to drink sodas acidified by phosphoric acid (41%; RR, 0.83). Eisner BH, Asplin JR, Goldfarb DS, et al: Citrate, malate and alkali content in commonly consumed diet sodas: Implications for nephrolithiasis treatment. J UROL 2010;183:2419-2423. Shuster J, Jenkins A, Logan C, et al: Soft drink consumption and urinary stone recurrence: A randomized prevention trial. J CLIN EPID 1992;45:911-916.

2014 - 116 An independent factor associated with poor prognosis in patients with local recurrence of RCC following radical nephrectomy is:
A. pulmonary metastasis.
B. age > 65 years.
C. ipsilateral adrenal location.
D. time to local recurrence.
E. size of local recurrence.

A
Local recurrence after radical nephrectomy is rare with an incidence of 2.9%. In addition, it is associated with a poor prognosis. Patients with local recurrence treated nonsurgically have a low survival rate. In addition, the presence of synchronous metastasis is associated with a significantly lower survival rate. Best outcomes are reported in those patients treated with surgical resection for isolated local recurrence only. Other factors, including time to local recurrence, location in the ipsilateral adrenal or renal fossa, and size of local recurrence are not independently associated with a worse outcome. Overall, five year survival rates for patients with surgically resected isolated local recurrences are approximately 30%. Bruno JJ, Snyder ME, Motzer RJ, et al: Renal cell carcinoma local recurrences: Impact of surgical treatment and concomitant metastasis on survival. UROL ONCOL 2006;97:933-938. Campbell SC, Lane BR: Malignant renal tumors, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 2, chap 49, p 1467.

2014 - 117
A three-year-old boy lost one-half of his scrotal skin after a dog attack two hours ago. His testicles, penis, and urethra are spared. Best management includes antibiotics, debridement, and:

A. split-thickness skin graft.
B. full-thickness skin graft.
C. placement of testicles in the thigh.
D. scrotal closure with drainage.
E. secondary scrotal closure.

D
The best choice for management is a tetanus immunization if he is not up to date, antibiotics, debridement, and primary closure with drainage. Skin grafts and placement of the testicles in the thigh are seldom required when half of the scrotal skin remains. **Secondary closure for such a recent injury is unnecessary**. If grafting is required, a meshed split thickness graft is preferable because the meshing allows exudate to escape and gives improved cosmesis. Thigh pouches are rarely required as wet to dry dressings of the exposed gonads can be effective in critically ill patients until reconstruction is feasible. Husmann DA: Pediatric genitourinary trauma, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 138, pp 3752-3753.

2014 - 118 Patients treated with D-penicillamine should receive supplemental:
A. calcium.
B. magnesium.
C. Vitamin B6.
D. Vitamin B12.
E. iron.

C
D-penicillamine is used in the management of patients with cystine stones. D-penicillamine is a chelating agent that produces complexes 50 times more soluble than cystine. Side effects include gastrointestinal disturbances, fever and rash, arthralgia, leukopenia, thrombocytopenia, proteinuria with nephrotic syndrome, and polymyositis. It can lead to pyridoxine (Vitamin B6) deficiency and supplementation is recommended with 50 mg/dl. Shekarriz B: Cystine stone disease. Stoller ML, Meng MV (eds): URINARY STONE DISEASE: THE PRACTICAL GUIDE TO MEDICAL AND SURGICAL MANAGEMENT. Totowa NJ, Humana Press, 2007, chap 18, p 340.

2014 - 119 A 49-year-old man had a hand-assisted laparoscopic radical nephrectomy for a 3.8 cm renal mass. Pathologic analysis reveals a grade 3 clear cell RCC confined to the kidney and three regional lymph nodes are

negative. The most appropriate follow-up for this patient in addition to routine history and physical exam is:
A. labs and chest x-ray yearly.
B.
labs, chest x-ray, and CT scan yearly.

C.
labs, chest x-ray, CT scan, and bone scan yearly.

D.
labs and chest x-ray every six months for three years, then yearly.

E.
labs, chest x-ray, and CT scan every six months for three years, then yearly.

A
Recent studies on the outcome of radial nephrectomy for localized RCC have demonstrated that the risk of recurrence is stage dependent with the risk approximately 7%, 25%, and 40% for T1, T2, and T3 N0 M0 patients, respectively. The risk of recurrence is also greatest during the first three years. The AUA Guidelines for follow-up of clinically localized renal neoplasms has recently been published. Evidence based recommendations for follow-up should be tailored according to pathologic stage. This patient has stage T1aNo disease. For patients with stage pT1 disease, routine abdominal CT scans are not necessary, however, a yearly chest x-ray for three years is now recommended per AUA Guidelines. For stage pT2 and pT3 patients, it is recommended to obtain chest x-ray and CT scan every six months for three years, then annually to year five. Donat SM, Chang SS, Bishoff JT, et al: Follow-up for clinically localized renal neoplasms: AUA Guideline. FOLLOW-UP CARE FOR RENAL CANCER. American Urological Association Education and Research, Inc, 2013. http://www.auanet.org/education/guidelines/renal-cancer-follow-up.cfm

2014 - 120 A 14-year-old boy with incontinence had PUV resected as a neonate. The most likely etiology for his incontinence is:
A. occult neurogenic bladder.
B. sphincteric injury.
C. detrusor overactivity.
D. poor bladder compliance.
E. myogenic failure.

E
Bladder dysfunction in PUV is common. Three distinct forms of bladder dysfunction have been characterized including detrusor overactivity, decreased capacity/compliance, and myogenic failure. In infants, decreased capacity/compliance predominates which

then transitions to detrusor overactivity as the child grows older. In adolescents, myogenic failure is the most common pattern seen which results in a large capacity bladder with decreased sensation and a variable degree of bladder wall compliance. Patients may have incontinence from poor emptying and overflow patterns. Management options include timed voiding, double voiding, alpha-blockers, and CIC. While sphincteric injury can occur, it is uncommon, as is the finding of an occult neurogenic bladder in children with PUV. Casale AJ: Posterior urethral valves, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 126, pp 3402-3403.

2014 - 121 Patients treated with acetohydroxamic acid should be monitored with the following blood test:

A. CBC.
B. LFT.
C. calcium level.
D. magnesium level.
E. ammonia level.

A

Due to routine bacterial colonization of struvite calculi, any stone fragments left behind following destruction or removal of struvite calculi places the patient at a high risk of both recurrent UTI and stone disease. Significant efforts should be made to render all patients with struvite stones, stone-free. In patients where this is not possible, Acetohydroxamic acid (AHA), a urease inhibitor may be of benefit. AHA has been shown in randomized controlled studies to decrease growth of residual struvite stone fragments, but does not decrease stone recurrence in patients who were made stone free at the time of their surgical procedure. Adverse reactions have occurred in up to 30% of the patients receiving AHA. Most of these reactions are mild in nature and do not require cessation of treatment. Specifically, about 25% of patients will complain of mild headaches and gastrointestinal symptoms within the first 72 hours of starting the treatment. These symptoms are mild, transitory, and should not result in interruption of treatment. It is noteworthy that numerous patients have noted the development of a nonpruritic macular skin rash of the face and upper extremities when concomitantly consuming alcohol. The rash commonly appears 30-45 minutes after ingestion of alcoholic beverages. It characteristically disappears spontaneously in 30-60 minutes. Patients should therefore be counseled to either avoid using alcohol or use smaller quantities of it. Three clinically significant side effects may result in either temporary cessation of treatment or complete withdrawal: 1) Superficial phlebitis involving the lower extremities has been seen in a number of patients on AHA, rarely will these patients advance to deep vein thrombosis. If this side effect should occur, the medication can be temporarily withdrawn and then restarted almost invariably without ill effects. 2) The most serious side effect of AHA is hemolytic anemia, found in up to 15% of the patients placed on this medication and is more prevalent in patients with renal insufficiency. AHA is a known inhibitor of DNA synthesis and chelates iron. Its bone marrow suppressant effect is probably related to its ability to inhibit DNA synthesis, but anemia could also be related to depletion of iron stores. Subsequently, a decrease in the

hemoglobin and hematocrit may arise while on chronic use of this medication. Abnormalities in platelet or WBC have not been noted. Systemic symptoms may be associated with the anemia and are classically described as concurrent malaise, lethargy, and fatigue, and gastrointestinal symptoms (3% of patients with GI symptoms will have concurrent hemolytic anemia). Symptoms and laboratory findings have invariably improved following cessation of treatment. Due to the frequency of this side effect, monitoring patients with quarterly CBC analysis is recommended. 3) Severe depression and or anxiety will arise in 5% of patients. These symptoms are poorly treatable by pharmacologic means and when they develop, interruption or discontinuation of treatment is recommended. AHA is not associated with alterations in liver function, calcium, or magnesium metabolism. Johnson DB, Pearle M: Struvite Stones. Stoller ML, Meng MV (eds): URINARY STONE DISEASE: THE PRACTICAL GUIDE TO MEDICAL AND SURGICAL MANAGEMENT. Totowa NJ, Humana Press, 2007, chap 17, p 317.

2014 - 122 Instillation of perioperative intravesical chemotherapy after a complete TURBT for urothelial cell carcinoma of the bladder is effective only if given:

A. immediately following the resection.
B. within six hours of the resection.
C. within 24 hours of the resection.
D. within seven days of the resection.
E. within two weeks of the resection.

C
The administration of a single perioperative dose of intravesical chemotherapy after complete TURBT for Ta-T1 TCC of the bladder significantly reduces the rate of tumor recurrence. This has also been summarized in a large meta-analysis in which patients receiving perioperative chemotherapy had a recurrence rate of 36.7%, compared to 48.4% with TUR alone. In all studies where benefit was noted, the instillation was given within 24 hours, generally either immediately or within six hours following the TURBT. Several randomized trials have demonstrated significant reductions in recurrence when the intravesical chemotherapy was administered within 24 hours as compared to starting it seven days later. Thus, there is evidence that the instillation should be given on the same day as the TURBT and not later. Oosterlinck W, Sylvester RJ: Perioperative instillation of chemotherapeutic drugs, Lerner SP, Schoenberg MP, Sterberg CN (eds): TEXTBOOK OF BLADDER CANCER. Abingdon, Oxon, Taylor and Francis, 2006, chap 29, pp 330-331.

2014 - 123 A three-month-old boy had a lumbar myelomeningocele closed at birth. The finding associated with the potential for detrusor-sphincter dyssynergia is:

A. level of lesion.
B. intact bulbocavernosus reflex.
C. lower extremity movement.

D. spontaneous voiding.
E. decreased anal sphincter tone.

B
Preservation of the sacral nerve arcs, as indicated by an intact bulbocavernosus reflex, suggests the potential for detrusor-sphincter dyssynergia. While other parameters such as lower extremity movement, spontaneous voiding, and normal anal sphincter tone may also suggest the presence of intact sacral arcs, the bulbocavernosus reflex is the most clinically specific. Unlike spinal cord injury, in lumbosacral spina bifida neural function and urodynamic findings cannot be predicted by the level of the lesion. MacLellan DL, Bauer SB: Neuropathic dysfunction of the lower urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 128, pp 3433-3438. Pontari MA, Keating M, Kelly M, et al: Retained sacral function in children with high level myelodysplasia. J UROL 1995;154:775-777.

2014 - 124
A 52-year-old man sustains an electrical burn to the penis while repairing a high voltage power line. Four hours after the injury, the penile shaft and glans are erythematous with superficial skin sloughing and blistering. The next step is:

A. observation.
B. retrograde urethrogram.
C. urethral catheter.
D. suprapubic cystostomy.
E. penile debridement.

D
The patient has suffered a significant burn to the penile shaft. Most genital burns are full thickness with significant tissue sloughing of the penis and urethra in the days following injury. Conservative management, including suprapubic tube placement in the bladder, should be maintained until the full extent of injury is known. Many times, prolonged bladder drainage is required in these patients due to the extent of their injury. Suprapubic cystostomy is preferred over urethral catheterization in order to avoid further urethral damage with catheterization, instrumentation, contrast studies, or endoscopy. Penile debridement is not indicated at this early stage of injury and retrograde urethrogram will not provide useful information four hours after injury. Medendorp AR, Albrecht MC, Morey AF: Natural history of full-thickness electrical burns involving the penis. J UROL 2007;70:588-589. Jordan GH: Lower genitourinary tract trauma and male external genital trauma (avulsion injuries, burn injuries, penile laceration with membranous urethral injuries) Part 3. AUA UPDATE SERIES 2000;19:12. Waguespack RL, Thompson IM, McManus WF, et al: Genital and perineal burns. AUA UPDATE SERIES 1995;14:30-35.

2014 - 125
A 61-year-old man has an International Prostate Symptom Score (IPSS) score of 18, a 40 gm benign feeling prostate on DRE, and a PSA of 3.2 ng/ml. He was started on dutasteride and the LUTS improved markedly during the first year of treatment. PSA data on follow-up is: 12 months, 1.2 ng/ml; 18 months, 0.9ng/ml; 24 months, 1.4 ng/ml; and 36 months, 1.9 ng/ml. The next step is:

A. PCA3.
B. free and total PSA in six months.
C. PSA in one year.
D. quinolone antibiotic followed by repeat PSA in six weeks.
E. TRUS and prostate biopsy.

E
Currently available 5-alpha-reductase inhibitors (finasteride and dutasteride) lower serum PSA in patients with and without prostate cancer. The doubling rule has been used to compensate for PSA reductions in patients on these medications. With growing experience and data from long-term clinical trials using these drugs (e.g. PCPT and PLESS), the effect on PSA and prostate cancer detection has been more clearly defined. Although the doubling rule does accurately reflect the population as a whole, given the wide intra and interindividual variability of serum PSA changes while on these medications, it is relatively inaccurate in the individual patient. While treatment of patients with either finasteride or dutasteride results in a -50% median change in the group as a whole, the 5th to 95th percentile range is -81-20%. Recent analysis of long-term data regarding the change in PSA in men receiving 5-alpha-reductase inhibitors, suggests that in the first year the doubling rule overestimates PSA and can systematically lead to an increased likelihood of prostate biopsy. Beyond 24 months (with further decline in PSA), the doubling rule may underestimate PSA and result in fewer biopsies. As most patients receiving these drugs attain a nadir serum PSA, a sustained increase from nadir can be used to prompt biopsy the same way as it would in untreated patients. Using a 0.3 ng/ml increase from nadir as a trigger for biopsy maintains a sensitivity and specificity similar to an absolute value of 4.0 ng/ml in untreated patients. Free and total PSA ratio should remain unaffected by 5-alpha-reductase inhibitor use. In the absence of infection, there is no indication for use of antibiotics. PCA3 is only FDA-approved for patients with a prior history of a negative biopsy. Marks LS, Andriole GL, Fitzpatrick JM, et al: The interpretation of serum prostate specific antigen in men receiving 5-alpha-reductase inhibitors: A review and clinical recommendations. J UROL 2006;176:868-874.

2014 - 126 A three-year-old girl has an abdominal mass and periorbital ecchymoses. These findings are most suggestive of:
A. tuberous sclerosis.
B. Wilms' tumor.

C. neuroblastoma.
D. Hodgkin's disease.
E. leukemia.

C
After brain tumors, neuroblastoma is the most common malignant solid tumor of childhood. More than half of these originate in the abdomen and a palpable abdominal mass is the most common finding. Periorbital metastatic disease is common, causing periorbital edema, proptosis, or raccoon-like ecchymoses. Tuberous sclerosis is associated with facial lesions of adenoma sebaceum in 75% of cases. These lesions are firm, discrete, red or brown telangiectatic papules (facial angiofibromata), and are typically located on the nasolabial folds, chin, and cheeks. Renal angiomyolipomas occur in 40-80% of patients with tuberous sclerosis. Wilms' tumor typically presents as an abdominal mass or with gross hematuria. Hodgkin's disease and leukemia often present with fever, night sweats, or fatigue. Neither Wilms' tumor, Hodgkin's disease, nor leukemia are associated with facial or periorbital lesions. Pope JC IV: Renal dysgenesis and cystic disease of the kidney, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 118, p 3177.

2014 - 127
A 58-year-old man experiences severe pruritus involving his genitals and buttocks several weeks after returning from a trip to Southeast Asia. Examination reveals small erythematous papules, excoriations, and small raised lines in the skin. The next step is:

A. topical clotrimazole.
B. permethrin.
C. prednisone.
D. serum herpes simplex virus titer.
E. biopsy.

B
The patientÆs presentation is characteristic for scabies. Scabies infestation is associated with overcrowding and poor health conditions. Severe pruritis is the hallmark of scabies and involvement of the external genitalia is very common. The characteristic findings on exam are small erythematous papules and thin grey or white burrows. Treatment of choice for scabies is 5% permethrin cream applied to the entire body overnight with a second application one week later. Clotrimazole is useful for treating candida but the examination is not consistent with candidal infection. Herpes simplex virus does not produce pruritis and there is no need for biopsy. Link RE: Cutaneous diseases of the external genitalia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 15, pp 456-457.

2014 - 128 A 62-year-old man undergoes TURBT for a solitary low-grade 1 cm papillary Ta bladder tumor. He receives a single perioperative dose of mitomycin C. This therapy will most likely decrease his risk of:
A. postoperative side effects.
B. short term recurrence (< 2 years).
C. long term recurrence (> 2 years).
D. progression.
E. cancer-specific mortality.

B
Perioperative mitomycin C is effective in decreasing the chance of recurrence in short term (one to two years), however there is no effect on progression or long term recurrence rate, and no significant differences in complications has been reported when compared to other intravesical therapies. Hall MC, Chang SS, Dalbagni G, et al: Guideline for the management of nonmuscle invasive bladder cancer (stages Ta, T1, and Tis): 2007 update. BLADDER CANCER. American Urological Association Education and Research, Inc, 2007. http://www.auanet.org/education/guidelines/bladder-cancer.cfm

2014 - 129
In a three-year-old boy, a partial nephrectomy is the most appropriate treatment for:

A. congenital mesoblastic nephroma.
B. stage V Wilms' tumor.
C. stage I rhabdoid tumor.
D. stage III lymphoma.
E. stage III neuroblastoma.

B
Mesoblastic nephromas are infiltrative tumors not amenable to partial nephrectomy. Rhabdoid tumors are highly malignant and similarly are best treated by radical nephrectomy. Lymphomas are optimally treated with systemic chemotherapy and neuroblastomas rarely involve the kidney. If the neuroblastoma involves the renal hilum, radical nephrectomy is often necessary. In the treatment of Stage V (bilateral) Wilms' tumor, renal preservation is important and hence partial nephrectomy is preferred when appropriate (mass amenable to partial nephrectomy) following chemotherapy. Ritchey ML, Shamberger RC: Pediatric urologic oncology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 137, p 3721.

2014 - 130 A 56-year-old obese man with a history of depression has a total testosterone of 450 ng/dl. Free testosterone level measured by an analog assay (immunoassay) is low. Physical exam is unremarkable. The next step is:

A. measure estradiol.
B. measure LH and prolactin.
C. measure bioavailable testosterone.
D. testosterone replacement therapy.
E. aromatase inhibitor therapy.

C
While this patient has depression, this is not specific for testosterone deficiency, and low testosterone should be demonstrated before initiating therapy. The patient has a normal total testosterone but a low free testosterone measured by an analog assay. The gold standard techniques for measurement of free testosterone are ultracentrifugation or equilibrium dialysis. Immunoassays, while convenient and widely available, utilize a testosterone analog and do not give accurate results. Measurement of bioavailable testosterone or free testosterone measured by ultracentrifugation or dialysis should be utilized. Calculated free testosterone which utilizes the total testosterone, sex hormone binding globulin with or without albumin levels, may also be used if the prior tests are not available. Determination of LH and prolactin may be indicated with low total testosterone levels to differentiate between primary and secondary hypogonadism. Since the total testosterone is normal, there is no role for LH or prolactin determination in this patient. While estradiol does increase with obesity, there is no indication for measurement of estradiol in this patient. Aromatase inhibitors are often used off label in patients with elevated estradiol levels and symptomatic gynecomastia. This is second line therapy and should not be initial therapy in most patients since long term safety has not been assessed. Long term use of aromatase inhibitors may result in elevation of liver function tests and affect bone health. Testosterone replacement therapy should not be instituted without demonstrating a low testosterone level. Morales A: Androgen deficiency in the aging male, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 29, pp 813-816.

2014 - 131 A 62-year-old man takes selenium and Vitamin E. He should be informed that his risk of:

A. high-grade PIN will decrease.
B. prostate cancer will decrease.
C. type 2 diabetes will decrease.
D. prostate cancer is unchanged.
E. non-genitourinary cancers are increased.

D
A randomized, placebo-controlled trial Selenium and Vitamin E Cancer Prevention Trial [SELECT] of 35,533 men randomly assigned to four groups (selenium, Vitamin E, selenium/Vitamin E, and placebo) was performed in a double-blind fashion. Baseline eligibility included age 50 years or older (African American men) or 55 years or older (all other men), a serum prostate-specific antigen level of 4 ng/ml or less, and a digital rectal examination not suspicious for prostate cancer. Patients received oral selenium

(200 _g/d from L-selenomethionine) and matched Vitamin E placebo, Vitamin E (400 IU/d of all race-alpha-tocopheryl acetate) and matched selenium placebo, selenium/Vitamin E, or placebo/placebo for a planned follow-up of minimum of seven years and a maximum of 12 years. There were no differences in prostate cancer risk between the four groups. However, there were statistically nonsignificant increased risks of prostate cancer in the Vitamin E group (P=.06) and type 2 diabetes mellitus in the selenium group (relative risk, 1.07; 99% CI, 0.94-1.22; P=.16) but not in the selenium/Vitamin E group. The conclusion of the study was that selenium or Vitamin E, alone or in combination at the doses and formulations used, did not prevent prostate cancer in this population of relatively healthy men. Non-genitourinary cancers were unchanged. Lippman SM, Klein EA, Goodman PJ, et al: Effect of selenium and Vitamin E on risk of prostate cancer and other cancers: The selenium and Vitamin E cancer prevention trial (SELECT). JAMA 2009;301:39-51.

2014 - 132 The site of origin associated with the worst prognosis in pediatric rhabdomyosarcoma is:

A. uterus.
B. prostate.
C. vagina.
D. spermatic cord.
E. bladder.

B
Combination chemotherapy with or without extirpative surgery has improved the prognosis for patients with rhabdomyosarcoma. The prostate has the worst prognosis as pertains to organ of origin, and radical surgery may be required if there is lack of response to non-operative treatment. The best prognosis in rhabdomyosarcoma has been associated with vaginal origin and embryonal histology. Ritchey ML, Shamberger RC: Pediatric urologic oncology, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 137, p 3704.

2014 - 133

A 23-year-old woman undergoes ureteroscopy with holmium laser lithotripsy for a 5 mm distal radiopaque ureteral calculus. Endoscopically, there was no residual stone. She is now asymptomatic. The next step is:

A. observation.
B. KUB.
C. ultrasonography.
D. KUB and ultrasonography.
E. non-contrast CT scan.

D

The need for an imaging study to confirm stone/fragment clearance after ureteroscopy with lithotripsy, although controversial, is widely accepted. These imaging studies are performed to document: 1) clearance of the stone/fragments. 2) resolution of preoperative obstructive hydronephrosis, and/or, 3) rule-out the development of obstruction from a ureteral stricture. The need for these follow-up studies in an asymptomatic patient is, however, subject to debate. At the foundation of this controversy is the low incidence of obstruction following ureteroscopic stone extraction, the ability of the patientÆs symptoms to predict ureteral obstruction, the unknown time of when a ureteral stricture occurs post-instrumentation, the renal salvage rate following relief of the obstruction, and the cost of a lost kidney versus the need to the need to contain medical costs. Obstruction after ureteroscopic stone extraction has a reported incidence of 1-4%, with the majority of obstructions due to a persistent stone fragment, a ureteral stricture is found to be the cause of the obstruction < 30% of the time. It is noteworthy, that when obstruction is present the vast majority of patients are symptomatic with the incidence of asymptomatic obstruction reported to range from 0.25-2% of patients undergoing ureteroscopic stone extraction. Stated another way, if obstruction develops post-ureteroscopic stone extraction, the majority of patients will be symptomatic. Indeed, a number of investigators have reported on the safety of selective imaging of only symptomatic patients, as opposed to the use of routine imaging after ureteroscopy. These authors center their recommendation for selective renal imaging based on the facts outlined above and believe that routine imaging to detect the rare case of silent obstruction is not cost-effective. The authors of the AUA Guidelines for imaging in patients with ureteral calculus acknowledge this controversy and note that the Level of Evidence for their recommendation for routine post-operative imaging is low (Grade C). In patients with a preoperative radiopaque calculi who have undergone ureteroscopy and lithotripsy, the Guideline Panel believes that the combination of a KUB and sonogram provides the best means to identify the patient who will require either additional imaging or interventional treatment. (Remember, retained stone fragments are the most common etiology overall for obstruction and may be missed byultrasound alone.) If the patient is asymptomatic and KUB/sonogram show no stones or hydronephrosis, no further imaging is required. If KUB/sonogram demonstrates hydronephrosis and/or residual fragments, further observation with repeat imaging or treatment is indicated. Patients with radiolucent stones or individuals who have undergone ureteroscopy and removal of stone without lithotripsy should undergo a renal ultrasound alone. CT scan is utilized for evaluation if the patient is symptomatic or if hydronephrosis is found on the screening ultrasound. It should be noted that the timing of the follow-up imaging studies is left to the discretion of the treating physician and generally ranges from one to three months post-ureteroscopy. The lack of a specific recommendation regarding a time interval on when to obtain the post-ureteroscopic image is based on inconsistent and limited data regarding rapidity of ureteral stricture development after ureteroscopic stone extraction. Whether the obstruction is incomplete or complete, the impact of pyelolymphatic and pyelovenous back flow on renal preservation and the unknown length of time obstruction needs to be present to cause irreversible renal loss. PF Fulgham, DG Assimos, MS Pearle, et al: Clinical effectiveness protocols for imaging in the management of ureteral calculous disease: AUA technology assessment. IMAGING FOR URETERAL CALCULOUS

DIESEASE. American Urological Association Education and Research, Inc, 2012. http://www.auanet.org/education/imaging-for-ureteral-calculous-disease.cfm Adiyat KT, Meuleners R, Monga M: Selective postoperative imaging after ureteroscopy. J UROL 2009;73:490-493. Sutherland, TN, Pearle, MS. Lotan, Y: How much is a kidney worth? Cost effectiveness of routine imaging after ureteroscopy to prevent silent obstruction. J UROL 2013;189:2136-2141.

2014 - 134

During a routine sports physical, a 25-year-old man has a 2 cm, well-circumscribed, solid mass discovered in the lower pole of the left epididymis confirmed by ultrasound. The testis is palpably normal. The next step is:

A.
CT scan of the chest, abdomen, and pelvis.

B. transscrotal excision of the mass.
C. inguinal excision of the mass.
D. left epididymectomy.
E. left radical orchiectomy.

C
This lesion likely represents an adenomatoid tumor, however, one cannot rule-out sarcomas. Adenomatoid tumors are the most common tumor of the paratesticular tissues, accounting for approximately 30% of all paratesticular tumors. There has never been a documented case of metastasis. Most occur in individuals in their twenties or thirties. Tumors present as small, solid, asymptomatic masses generally found on routine examination, ranging from 0.5-4 cm in size. They are typically located in the anatomic distribution of the epididymis, testicular tunicae, and rarely, the spermatic cord. Most tumors will arise in or adjacent to the upper or lower pole of the epididymis, with a slightly higher incidence in the lower pole. The definitive treatment is surgical excision through an inguinal incision. Transscrotal incision is contraindicated because malignancy has not been ruled out. Fertility status, and/or semen analysis, and/or fertility preservation should be discussed with the patient prior to the procedure. Stephenson AJ, Gilligan TD: Neoplasms of the testis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 31, p 869.

2014 - 135 A newborn boy with prune belly syndrome has urinary retention and progressive hydroureteronephrosis. The best method to reduce the risk of postoperative bladder wall prolapse after cutaneous vesicostomy is to:
A. perform reduction cystoplasty.
B. create an 8 Fr stoma.

C. place the stoma in the umbilicus.
D. exteriorize the bladder dome.
E. suture bladder muscle to the fascia.

D
Exteriorization of the dome of the bladder by the Blocksom technique will prevent prolapse of the bladder. Placement of the vesicostomy cephalad to the urachus immobilizes the peritonealized portion of the bladder dome. None of the other techniques have been shown to adequately immobilize the bladder and prevent the posterior wall of the bladder from extruding through the stoma. Caldamone AA, Woodard JR: Prune-belly syndrome, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 123, p 3318. Casale AJ: Posterior urethral valves, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 126, pp 3398-3399.

2014 - 136
A 13-year-old boy with dysuria, left scrotal pain, and swelling has a tender indurated epididymis and normal testes. Urinalysis is normal. An ultrasound shows normal testes with blood flow and an enlarged hypervascular left epididymis. The next step is:

A. NSAIDS.
B. ciprofloxacin.
C. ceftriaxone and doxycycline.
D. uroflow-EMG.
E. VCUG.

A
The presentation is very strongly consistent with either torsion of an appendix or noninfectious epididymitis. Obtaining a VCUG or uroflow-EMG are unlikely to add any useful information. Neither STD treatment, nor antibiotics should be started without the findings of either a urethral discharge, positive urinalysis, and/or admission of sexual activity. The most appropriate treatment includes NSAIDs as well as rest and scrotal support. Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 116, pp 3117-3118.

2014 - 137 A 67-year-old man underwent radical prostatectomy with pelvic lymph node dissection following three months of LH-RH agonist therapy. The pathologist will not be able to accurately describe:
A. tumor volume.
B. tumor stage.

C. nodal status.
D. Gleason score.
E. surgical margins.

D
Several series have demonstrated that administration of hormonal deprivation therapy prior to radical prostatectomy does not lower the risk of biochemical relapse. Although tumor volume, stage, nodal status, and margin status appear improved in men receiving neoadjuvant hormonal ablation, the risk of biochemical relapse is equivalent to those men who do not receive any neoadjuvant therapy. Gleason scoring can be quite difficult in men who have received hormonal deprivation due to the noted treatment effect in the tissues. Among these men, Gleason score can appear artificially higher and it is recommended that Gleason score not be assigned. Epstein JI: Pathology of prostatic neoplasia, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 3, chap 96, p 2732.

2014 - 138 The renal cystic condition that arises prior to formation of the nephron is:
A. autosomal recessive polycystic kidney disease.
B. autosomal dominant polycystic kidney disease.
C. medullary sponge kidney.
D. multicystic dysplastic kidney.
E. juvenile nephronophthisis.

D
Most renal cystic conditions whether congenital, acquired, or sporadic arise from the nephrons and collecting ducts after they have formed. Multicystic dysplastic kidney is an exception in that it arises prior to formation of the nephron. It results from the abnormal differentiation of the metanephric parenchyma during early embryologic development of the kidney. Autosomal recessive polycystic kidney disease occurs during the formation of the nephron and results from mutations in the PKHD1 gene that encodes for a membrane associated receptor like protein known as fibrocystin. Abnormalities in fibrocystin secretion result in dilation of the epithelial line tubules predominantly the renal collecting ducts and the bile ducts. Abnormal fibrocystin secretion, in addition to causing abnormal ductal development, stimulates fibrous connective tissue development resulting in congenital hepatic fibrosis. Autosomal dominant polycystic kidney disease is due to either a defect in the PKD-1 or PKD-2 gene, the former being more common. These genes encode for either polycystin-1 or polycystin-2 respectively. The polycystins function within the calcium channels and disruption of their activity will lead to cyst formation and fibrotic renal stroma and usually begin to become manifest in the second to third decade of life. Medullary sponge kidney is characterized by tubular dilation of the collecting ducts with associated cysts and diverticula. Juvenile nephronophthisis, although rare, is the most common genetic cause of childhood kidney failure and is characterized by fibrosis and cystic dysplasia of renal tubules. Pope JC IV: Renal

dysgenesis and cystic disease of the kidney, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 118, p 3182.

2014 - 139 A 24-year-old man has a split urinary stream with significant bother. Examination reveals a circumcised penis with a grayish white plaque surrounding a constricted urethral meatus. Retrograde urethrogram reveals a 1.5 cm meatal stricture and the rest of the urethra is unremarkable. Biopsy of the meatus confirms lichen sclerosis. The next step is:

A. meatal dilation.
B. CO2 laser ablation and urethrotomy.
C. meatotomy.
D. distal urethroplasty with buccal mucosa.
E. distal urethroplasty with penile skin flap.

D

In this patient, the best long-term treatment option is urethroplasty with buccal mucosa. It is felt that the use of extragenital tissue, namely buccal mucosa, reduces the risk of lichen sclerosis (LS) induced stricture recurrence as there is a theoretical field change effect of LS involvement of the entire genital skin. Meatotomy is an option, yet this may create a distal hypospadias appearance for this young man along with potential voiding issues if the meatus is cut too proximal on the glans. Meatal dilation is not effective in this setting and the outcomes of CO2 laser use for LS induced urethral meatal stricture disease is unknown. Jordan GH, McCammon KA: Surgery of the penis and urethra, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 36, p 962.

2014 - 140 The most common site of origin of extragonadal germ cell tumors is the:

A. lung.
B. pelvis.
C. mediastinum.
D. pineal gland.
E. retroperitoneum.

C

In decreasing order of frequency, the most common sites of origin of extragonadal germ cell tumors are the mediastinum, retroperitoneum, sacrococcygeal region, and pineal gland, although many unusual sites have also been reported. Stephenson AJ, Gilligan TD: Neoplasms of the testis, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 31, p 845.

2014 - 141 A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal and bladder ultrasound is normal. The next step is:
A. cystoscopy.
B. CT urogram.
C. urinary myoglobin.
D. urinary calcium to creatinine ratio.
E. urinalysis 72 hours later.

E
Hematuria after prolonged strenuous exercise is relatively common in individuals who are otherwise free of congenital urinary tract disease. There may be mild proteinuria with the RBCs. Erythrocyte casts are usually not present and the supernatant urine specimen is clear, ruling out significant hemoglobinuria. Hypercalciuria is not related to exercise, and therefore, the urinary calcium to creatinine ratio will be normal. The urinalysis in this benign condition is generally normal 48-72 hours after the exercise. Myoglobinuria is characteristically brown without RBCs. Cystoscopy and CT urogram will be normal. Polito C, Andreoli S: Sport hematuria in boys: A provocative test. PED NEPHR 2005;20:1171-1173. Holmes FC, Hunt JJ, Sevier TL: Renal injury in sport. CURR SPORTS MED REP 2003;2:103-109.

2014 - 142
A 72-year-old woman with pseudomembranous colitis is treated with oral vancomycin. After 48 hours, her diarrhea worsens and she develops fever and leukocytosis. The next step is:

A. oral metronidazole.
B. I.V. vancomycin.
C. I.V. metronidazole.
D. I.V. fluoroquinolone.
E. surgical consultation.

E
The incidence of Clostridium difficile infection (CDI) is increasing with a preponderance of the NAP1 hypervirulent strain of C. difficile found in recent epidemics. It is believed the NAP1 strain arose due to the widespread use of fluoroquinolone antibiotics. The NAP1 strain is more likely to cause severe and fulminant colitis, characterized by marked leukocytosis, renal failure, hemodynamic instability, and toxic megacolon. While oral vancomycin and oral metronidazole are both considered standard therapies for CDI, recent studies suggest that vancomycin is more effective. Neither I.V. vancomycin nor I.V. metronidazole have been found to be more effective than the oral form of the medications for treatment of CDI. There is no role for fluoroquinolone antibiotics in treatment of CDI. This patient with development of worsening diarrhea, fever, and

leukocytosis, demonstrates failure to improve following implementation of standard treatment and is an absolute indication for surgical consultation. Subtotal colectomy with end ileostomy is the procedure of choice for fulminant CD colitis nonresponsive to medications and has been documented to result in improved survival. Pant C, Sferra TJ, Deshpande A, et al: Clinical approach to severe Clostridium difficile infection: Update for the hospital practitioner. EUR J INT MED 2011;22:561-568. Moudgal V, Sobel JD: Clostridium difficile colitis: A review. HOSP PRACT 2012;40:139-148. Nassour I, Carchman EH, Simmons RL, et al: Novel management strategies in the treatment of severe Clostridium difficile infection. ADV SUR 2012;46:111-135.

2014 - 143 A 65-year-old man has a partial penectomy for a high-grade pT2 lesion. He has no palpable adenopathy in the inguinal region. Metastatic workup is negative. The next step in management is:
A. serial physical examination of the inguinal nodes.
B. serial imaging with CT scan.
C. sentinel inguinal node biopsy.
D. delayed inguinal lymphadenectomy if nodes become palpable.
E. immediate bilateral inguinal lymphadenectomy.

E
Patients with high-grade T2 cancer are at a significant risk of occult regional disease or of development of this disease. Studies have shown that patients who have an immediate bilateral inguinal lymphadenectomy have an increased survival than if they develop palpable disease during follow-up. Although this patient currently has no evidence of adenopathy, he has a 59% risk of developing involved lymph nodes. Sentinel lymph node biopsy is gaining popularity, but still lacks sufficient sensitivity and specificity. Pettaway CA, Lance RS, Davis JW: Tumors of the penis, Wein, AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 34, p 916.

2014 - 144
The diagnosis of a renal pseudotumor (column of Bertin, focal cortical hyperplasia) is best established by:

A. MRI scan.
B. MAG-3 scan.
C. DMSA scan.
D. arteriogram.
E. CT scan.

C
Radionuclide imaging using cortical scanning agents (DMSA, as opposed to MAG-3 which is filtered and excreted) will demonstrate an area of activity when the suspicious lesion is cortical hyperplasia (column of Bertin). MRI scanning will not differentiate this

from other solid lesions. Although arteriography and CT scanning will both help in differentiating malignancy from pseudotumor, they are more invasive and expensive than renal scan and also have higher radiation exposure. They should be utilized only if the radionuclide study does not provide a definitive diagnosis. Shapiro E, Bauer SB, Chow JS: Anomalies of the upper urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 117, p 3158.

2014 - 145 A 55-year-old diabetic woman stented three months earlier for an obstructing ureteral calculus is scheduled for ureteroscopy and laser lithotripsy. A preoperative urinalysis reveals yeast that is confirmed with a catheterized specimen. The next step is:
A. administer preoperative amphotericin I.V. and proceed with planned surgery.
B. administer preoperative fluconazole I.V. and proceed with planned surgery.
C. administer preoperative caspofungin I.V. and proceed with planned surgery.
D. instill amphotericin solution into the bladder 30 minutes preoperatively and proceed with planned surgery.
E.
reschedule surgery, proceed with surgery only after culture-documented clearance of funguria.

E
Candida species are capable of causing severe infection and should be treated as a uropathogen. Suspected UTI should be treated prior to ureteroscopic stone treatment with surgery performed only after culture documented clearance of funguria. Neither irrigation nor intravenous administration of anti-fungals just prior to surgery is sufficient to reduce the risk of postoperative candidemia. Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10 p 298. Gautam G, Singh AK, Kumar R, et al: Beware! Fungal urosepsis may follow endoscopic intervention for prolonged indwelling ureteral stent. J ENDO 2006;20:522-524. Preminger GM, Tiselius HG, Assimos DG, et al: 2007 Guideline for the management of ureteral calculi. URETERAL CALCULI, American Urological Association Education and Research, Inc, 2007. http://www.auanet.org/education/guidelines/ureteral-calculi.cfm

2014 - 146 A 44-year-old woman undergoes a left radical nephrectomy for a 6 cm RCC with renal vein involvement. The posterior surgical margin is positive. Pathologic tumor stage is:
A. T1b.
B. T2b.

C. T3a.
D. T3b.
E. T4.

C
If this 6 cm tumor were contained within GerotaÆs fascia, the pathologic (p)T stage would be pT1b. However, there is renal vein involvement that is now classified as pT3a (previously pT3b). Tumors with isolated renal vein thrombus are known to have a relatively favorable prognosis, and as a result are now staged as T3a rather than T3b. The margin status is designated as R1, but does not affect primary pathologic tumor stage. Edge SB, Byrd D, Compton C, Fritz A: AJCC Staging Manual, ed 7. New York, Springer-Verlag, 2010, chap 43, pp 479-490.

2014 - 147 A phenotypically normal three-year-old girl has testicles found in the hernia sacs at herniorrhaphy. She will also have:
A. elevated 17-hydroxyprogesterone.
B. absent 5-alpha-reductase.
C. abnormal androgen receptor activity.
D.
low testosterone, and elevated LH and FSH.

E. 45 X0/46 XY karyotype.

C
Three percent of girls with inguinal hernias have complete androgen insensitivity syndrome. A testicle is found in the hernia sac and a chromosome analysis will reveal a 46 XY karyotype. They should be raised as females. 45 X0/46 XY chromosomal patterns are accompanied by a streak gonad most commonly. Elevated 17-hydroxyprogesterone is seen with CAH, but in this case the gonads would be ovaries. Patients with 5-alpha-reductase deficiency present with either proximal hypospadias or more ambiguous genitalia. Low testosterone with elevated LH and FSH occurs with abnormal testosterone production. Diamond DA, Yu RN: Sexual differentiation: Normal and abnormal, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 4, chap 133, pp 3621-3622.

2014 - 148
A 65-year-old man has symptoms of cystitis, left flank pain, and a fever to 39_ C. Urinalysis reveals pyuria and culture shows a pan-sensitive E. coli. One month after appropriate antibiotic therapy, he is asymptomatic and repeat urinalysis and midstream culture are negative. PVR is 45 ml. The next step is:

A. observation.

B. complete urodynamic studies.
C. prostatic localization cultures.
D. trimethoprim sulfamethoxazole prophylaxis.
E. CT urogram and cystoscopy.

E
This man presents with symptoms of pyelonephritis. While uncomplicated cystitis in a young sexually active male may not require investigation beyond a follow-up urine culture, a complicated UTI in an older male warrants urologic evaluation such as CT urogram and cystoscopy due to the high incidence of associated urologic abnormalities such as obstruction from either urethral or ureteral strictures, tumor, or stones. Observation is incorrect. Localization cultures might be considered as part of a urologic evaluation but are not sufficient as isolated tests in the presence of a complicated febrile UTI. There is no justification for prophylaxis or complete urodynamic studies. Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 10. Philadelphia, Elsevier Saunders, 2012, vol 1, chap 10, pp 272-273.

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A 68-year-old active man with metastatic castration-resistant prostate cancer receives six cycles of docetaxel plus prednisone. Bone scan reveals several new rib lesions. To improve the likelihood of overall survival, the next treatment step is prednisone and:

A. continued docetaxel.
B. zoledronic acid.
C. ketoconazole.
D. mitoxantrone.
E. cabazitaxel.

E
Progression while on docetaxel-chemotherapy defines failure of the docetaxel. Cabazitaxel is a novel tubulin-binding taxane drug with anti-tumor activity in docetaxel-resistant cancers. In a large Phase 3 trial, the efficacy and safety of cabazitaxel plus prednisone was compared to that of mitoxantrone plus prednisone. There was a 30% reduction in the risk of death with the cabazitaxel (15.1 months versus 12.7 months). None of the other agents listed have been shown to improve survival in men with castration-resistant prostate cancer. Two additional agents recently approved by the FDA which are abiraterone and enzalutamide, have been shown to also improve survival in this patient population. None of the other regimens have demonstrated a survival difference in this population of patients. de Bono JS, Oudard S, Ozguroglu M, et al: Prednisone plus cabazitaxel or mitoxantrone for metastatic castration-resistant prostate cancer progressing after docetaxel treatment: A randomised open-label trial. LANCET 2010;376:1147-1154. Cookson MS, Kibel AS, Dahm P, et al: Castration-resistant prostate cancer: AUA guideline. CASTRATION-RESISTANT PROSTATE CANCER. American Urological

Association Education and Research, Inc, 2013.
http://www.auanet.org/education/guidelines/castration-resistant-prostate-cancer.cfm

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